9

Content

Now is the winter of our discontent made glorious summer . . .

—Shakespeare

If only.

—Bloggs

In the Introduction we noted that some mental states are *about* things; that is, they *represent* some thing or things as being a certain way. For example, Bloggs's belief that Mt Everest is 8,848 meters high is about Mt Everest and represents Everest as being a certain height. Desires, too, can be about things: Bloggs's desire to have blond hair is about his hair and represents his hair as blond. Other kinds of mental states can also be about things; for example, you can be *happy* that it's your birthday, or *sad* about the weather. However, in what follows I will focus exclusively on beliefs.

Now, according to physicalism, beliefs are states of people's brains. So if Bloggs's beliefs are about things, it follows that states of his brain are about things. But how does a state of someone's brain get to be about Mt Everest? This is the problem of content, and answers to the question just posed are theories of content.

In this chapter we will examine five theories of content, and also look (in Section 9.6) at some important issues that have been raised about content. Before getting started, though, it will be worth having a quick look at some of the terminology that's used in this field. I will try to keep the terminology as simple as possible; however, you're likely to come across alternative terminology when you read around, so it's worth being aware what some of these terms mean.

We have said that some mental states are *about* things; that is, they *represent* things. Mental states which represent things are often said to be *intentional* states. (Note that this is a technical use of the term 'intentional'. In ordinary usage, when we say that someone did something 'intentionally' we mean they did it deliberately. That usage of 'intentional' is quite different from the one technical one.) What a mental state is about is sometimes called the *content* of that state. The content of Bloggs's belief that Mt Everest is 8,848 meters high is the following state

of affairs: Everest is 8,848 meters high. Notice that the state of affairs which is the content of a thought doesn't have to be true. Bloggs could believe that snow is black, in which case the content of his belief is false.

The state of affairs which is the content of a mental state is sometimes called a '**proposition**'. The English philosopher Bertrand Russell (1872–1970) coined the phrase **propositional attitudes** to refer to mental states that have content. His idea was that when we believe X we take the *attitude* of believing to the *proposition* X; when we desire Y we take the *attitude* of desiring to the *proposition* Y; and so on.

English sentences used to attribute **propositional attitudes** often contain a 'that clause' straight after the psychological verb: 'Bloggs believes *that he is cool*'; 'Sally wishes *that Bloggs would go away*'. The 'that clause' describes the content of the mental state: 'that he is cool' and 'that Bloggs would go away', respectively. Find the 'that clause' and you've found the content.

Finally, recall that in Section 6.1 we noted that the semantic properties of a symbol are the properties to do with the symbol's meaning. Sometimes philosophers who are interested in the problem of content say that they are seeking a *semantics* for mental states (or a 'psychosemantics'); they may also say that they are interested in the *meaning* of mental states.

9.1 The resemblance theory

According to the resemblance theory of content, my dog thoughts are about dogs because my dog thoughts *resemble* a typical dog. More generally, my thought about X is about X because it resembles X.

Unfortunately, this is not a very plausible idea. To begin with, we need to specify the *respects* in which a thought resembles the thing it represents. In what respects is my dog thought like a dog? The trouble is that just about everything resembles just about everything else in some respect. For example, my laptop resembles the Eiffel Tower. How so? Well, they're both located in space and time. I've seen them both and I'm rather fond of them both. In addition, they're both products of great genius: the Eiffel Tower was designed by the great French engineer Gustave Eiffel; my laptop owes its design to the work of the brilliant American mathematician John von Neumann. So there we go, my laptop resembles the Eiffel Tower! Similarly, there are no doubt *some* respects in which my dog thoughts resemble cats. So why are my dog thoughts about dogs rather than cats?

In response, it might be suggested that the relevant respect is visual appearance: my dog thought is about dogs because the visual experience I have when I think about dogs is very much like the visual experience I have when I see a dog. (It's something like this which the British empiricists intended.) But this idea, too, is

fraught with difficulties. To begin with, we are able to think about things which don't look like anything at all. For example, I can think about inflation, but what does inflation look like? Since inflation doesn't look like anything, my inflation thoughts can't be about inflation in virtue of their visually resembling inflation. This kind of objection applies quite generally to thoughts about abstract objects like the number two. Since abstract objects don't have visual appearances, we cannot have thoughts about abstract objects in virtue of having thoughts which resemble them in visual respects. (By the way, the number two is quite distinct from the *numeral* 2. The numeral 2 certainly does have a visual appearance; it looks like this: 2.)

A related difficulty concerns thoughts about classes of objects. I can think about individual dogs like Lassie, but I can also think about dogs in general—about the *class* of all dogs. What does the class of all dogs look like? How can I have a thought which visually resembles the class of all dogs? There seem to be two options: (i) I could have a thought which visually resembles a *representative* dog or (ii) I could have a thought which visually resembles *all* the dogs that will ever exist. The trouble with (i) is explaining why the thought is about all dogs rather than the particular dog which it visually resembles. The trouble with (ii) is that I don't know how many dogs will exist, and so at best my thought will visually resemble some (pretty arbitrary) number of dogs—say 101. So why is my thought about the class of dogs rather than about a group of 101 dogs?

Let's set aside difficulties generated by abstract objects and classes of objects, and focus on thoughts about concrete individuals like Socrates and Lassie. Even here there are serious problems. I can think about something even though I can't distinguish it visually from a number of other things. For example, I can think about the first person to swim in the Nile but, whilst I can form a mental image of a person and label it 'my image of the first person to swim in the Nile', there is no reason to think that my image resembles the first person to swim in the Nile anymore than it resembles millions of other people. So why is it a representation of the first person to swim in the Nile rather than a representation of one of those other folk?

Taken together, these worries are more than enough to motivate a search for a better theory of content.

9.2 The causal theory

Here's another approach to the problem of content. Perhaps my dog thoughts are about dogs because they're caused by, *and only by*, dogs. More generally, my thought about Xs is about Xs because (i) my thought was caused by an X and (ii) nothing but Xs cause me to have thoughts about Xs.

The causal theory is sometimes called the 'indicator' theory, and sometimes 'information semantics'. To see why the name 'indicator theory' is appropriate, think about the indicator which tells you which floor the lift you are riding has reached. If the indicator is working properly, it tells you that you have reached floor seven when, *and only when*, you have reached floor seven. Similarly, if your dog thoughts are working properly, they indicate that a dog is present when, *and only when*, a dog is present. The other name—'information semantics'—is appropriate because in the formal theory of information developed by the American mathematician Claude Shannon, state A carries information about state B if As are caused by, and only by, Bs. For example, the presence of smoke carries information about the presence of fire if smoke is caused by, and only by, fires. For present purposes I will stick with the name 'causal theory'.

The causal theory of content has, very often, been elaborated in the context of the computational theory of mind (see Chapter 6). According to the computational theory of mind, a thought like 'Jake loves dogs' is made up of mental symbols arranged in an appropriate way. One of those mental symbols is about Jake; another is about dogs. Following a widely adopted convention, I will use words written in capital letters to refer to mental symbols. Thus 'JAKE' is the name of a mental symbol which is about Jake, and 'DOG' is the name of a mental symbol which is about (you guessed it) dogs. Adopting this convention we can say that, according to the causal theory of content, DOGs are about dogs because DOGs are caused by, and only by, dogs.

Straightaway we can see problems with this view. I can think about dogs—that is, have the mental symbol DOG—even though I have had no direct causal contact with dogs. (Perhaps I live in a part of the world which is entirely dogless, but I've heard about dogs and often think how much I'd like to see one.) One way to reply to this objection is by allowing that *indirect* causal links between dogs and DOGs can be sufficient to make DOGs be about dogs. For example, maybe I heard about dogs from Bloggs, who saw one on his travels. Thus my DOG symbol refers to dogs because of the causal chain which stretches from a dog to me via Bloggs.

Another worry is this. I can think about the Easter Bunny even though there is no causal connection—not even an indirect one—between my EASTER BUNNY symbol and the Easter Bunny because there is no such thing as the Easter Bunny. (I hope I'm not upsetting anyone here.) One way to respond to this objection is by saying that my EASTER BUNNY symbol is not simple—it's a complex of other symbols like RABBIT and MAGICAL. That response is not available, however, in the case of abstract objects like the number two. It's generally accepted that the number two has no causal impact on the world—nobody ever had their toe squashed by the number two. Moreover, it seems unlikely that my mental symbol TWO is a complex of other symbols. Nevertheless, many people possess the mental symbol TWO.

A further problem arises because the causal pathway from dogs to DOGs is usually quite long. Consider, for example, what happens when Bloggs sees a dog. Light is reflected from the dog's fur and travels to Bloggs's eyes. His lens focuses the light on his retina where it causes a particular pattern of activation. Information about that pattern is then sent along the optic nerve into the brain where it is processed. Finally, a token of DOG is formed deep in Bloggs's brain. Let's call the pattern of activation on Bloggs's retina the 'd-pattern'. There's a causal connection between the d-pattern and Bloggs's DOG token: the d-pattern caused certain activity in Bloggs's optic nerve which caused some stuff to happen in his brain which caused the formation of a DOG token. Consequently, the causal theory of content is committed to the absurd claim that DOGs are about d-patterns of activation on the retina! (Alternatively, perhaps we should say that DOGs are about dogs-or-d-patterns.) This is sometimes called the 'depth' problem because it demands an answer to the question, 'At what depth in the causal history of a mental representation is content assigned?' (see Sterelny 1990: Ch. 6). We will return to the depth problem in Section 9.4.

A similar problem is the 'width' problem (also called the 'qua' problem). When Bloggs looks at a dog, he doesn't see the whole dog; indeed, he doesn't even see the whole surface of the dog. At best he sees the side of the dog closest to him. So, strictly speaking, what caused Bloggs to form a DOG token was not the dog, nor even the surface of the dog, but rather part of the surface of the dog. For convenience, let's call the part of the surface of the dog which Bloggs saw, 'part X'. Since it was part X which caused Bloggs to form a token of DOG, why isn't the content of DOG 'part X'? (see Sterelny 1990: Ch. 6). (It's said that the English philosopher G. E. Moore (1837–1958) was once asked if the sheep had been shorn. He glanced at the sheep and replied, 'Well, this side of them has.')

Important though the difficulties discussed so far are, most of the attention in the literature has focused on a different problem: the *disjunction problem*. The disjunction problem arises because we occasionally misidentify objects. For example, one foggy evening Bloggs mistook a sheep for a dog. That is, a sheep caused him to have the mental symbol DOG. It follows that Bloggs's DOG symbols are caused by both dogs and sheep. (Strictly, Bloggs's DOG symbols are caused by both dogs and sheep-on-foggy-evenings. For present purposes I'll just say 'sheep'.) See Figure 9.1.

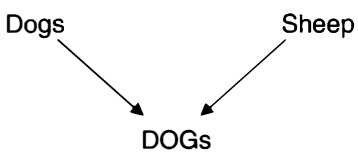

Figure 9.1 The disjunction problem. Bloggs's DOGs are caused by both dogs and sheep

Now according to the causal theory of content, DOGs are about dogs if and only if they are caused by dogs *and nothing else*. But in the case we are considering, a token of DOG was caused by a sheep. Therefore Bloggs's DOG symbols aren't simply about dogs. Rather, since Bloggs's DOG symbols can be caused by either dogs or sheep (and, let us suppose, by nothing else), the content of DOGs is not dogs, but dogs-or-sheep!

Notice that this means that nobody ever misidentifies anything. The natural thing to say about Bloggs's predicament that foggy evening is that he mistook a sheep for a dog. But the causal theory is committed to saying that he *correctly* identified a sheep as a dog-or-sheep.

It's been suggested (see, for example, Dretske 1981) that there is a crucial period in our lives when our DOG symbols get their meaning. Our teachers make sure that, during that period, only dogs get to cause our DOG symbols. That's why DOGs are about dogs, not dogs-or-sheep. However, it seems very unlikely that any such period exists. Whilst I try to avoid saying 'cat' when my toddler is patting a dog, I certainly don't make sure that only dogs cause him to have the symbol DOG. How could I? I don't know enough about the inside of his head to make sure that his DOG symbols are only ever caused in exactly the right way.

The disjunction problems turn out to be a very hard problem indeed. As we will see, it keeps coming back like a bad dream.

9.3 The teleological theory

To understand the teleological theory of content we first need to understand the idea of a **biological function** (sometimes called a 'proper function'). According to the *teleological theory of biological function*, the biological function of an organ is an *effect* of the organ—something the organ *does*. In particular, it is that effect which contributed to the survival and reproduction of the evolutionary ancestors of the contemporary bearers of the organ. Thus the human eye has the biological function of seeing because our ancestors survived and reproduced in part because they had eyes which enabled them to see. You and I have eyes today in part because our ancestors had eyes which, by allowing them to see, increased their chance of surviving and reproducing.

Here's another example. What's the biological function of the heart? We've noted that the biological function of an organ is something that it does. However, the heart does more than one thing. For simplicity's sake, we'll restrict our attention to two of the things the heart does: (i) it pumps blood and (ii) it make those small sounds which the doctor listens to with her stethoscope. Which one of these effects is the biological function of the heart? Is the heart's biological function to pump blood or make little noises?

According to the teleological theory of biological function, the function of the heart is to pump blood rather than make little noises. This is because our evolutionary ancestors survived and reproduced in part because they had hearts that pumped blood; they did not survive and reproduce because their hearts made small sounds. You and I have hearts today in part because our ancestors had hearts which pumped blood, not because they had hearts which made little noises. Consequently, the biological function of our heart is to pump blood rather than make little noises.

We can put the point about biological function quite generally as follows. Say that contemporary members of a species S have an organ O. The biological function, F, of O is that effect of O which contributed to the survival and reproduction of the ancestors of S. In other words, Ss have Os today because the ancestors of S had Os which did F.

Notice that sometimes an organ fails to achieve its biological function. For example, Bloggs's heart may fail to pump blood because his coronary arteries are clogged with cholesterol. Or the chlorophyll in Bloggs's favorite pot plant may fail to trap solar energy because Bloggs forgot to water it. The conditions under which an organ fulfils its biological function are called its *Normal* conditions; the conditions under which it fails to fulfill its biological function are called its *abNormal* conditions. Having a heap of cholesterol in your blood is abNormal for heart function; being dried out is abNormal for chlorophyll function. (Note the capitalized 'N' which serves to distinguish these special uses of 'Normal' and 'abNormal' from other, more familiar uses.)

Discussions of the teleological theory of content almost always turn on the example of a frog which uses its tongue to catch flies. Now the tongue 'snapping' behavior of the frog is under the control of a state of the frog's brain. Let's call that state 'G'. G is caused by the sight of a passing fly and causes the frog's tongue to 'snap'. Presumably, G has the content 'fly zooming by' ('fly' for short).

It turns out that frogs can't distinguish flies from other small black objects. Mean little boys exploit this feature of frogs and amuse themselves by getting frogs to snap at and ingest BBs (the small lead pellets fired by air rifles). When a frog snaps at a BB it's natural to say that the frog misidentified a BB as a fly. But now the disjunction problem arises. Since both flies and BBs cause the frog to have the brain state G, the causal theory of content is committed to saying that the content of G is flies-or-BBs. And in that case the frog doesn't mistake a BB for a fly—it correctly identifies a BB as a fly-or-BB.

The teleological theory of content offers a solution to this difficulty. Plausibly, the biological function of G is to catch flies: it's because the frog's ancestors had a brain state—G—which directed fly-catching behavior that they survived and reproduced. Alas, in contemporary frogs G does not always direct fly-catching

behavior: it sometimes directs BB-catching behavior. In other words, mean little boys torturing frogs with BBs constitute abNormal conditions for G.

We can use the claim that the biological function of G is to catch flies to resolve the disjunction problem. Under Normal conditions, G is caused by, and only by, flies; it is only under abNormal conditions that G is caused by BBs. According to the teleological theory of content, the content of a mental symbol is determined by, and only by, whatever causes it *under Normal conditions*. Since BBs don't cause G to occur under Normal conditions, G does not mean flies-or-BBs; it only means flies.

This is a very elegant theory. However, it faces difficulties of its own. Let's return to the idea of a biological function. A couple of paragraphs back we observed that any frog which detected flies would tend to survive and reproduce. However, in the frog's ancestors' environment pretty much any small black object zooming past was a fly, and so any frog which detected small black objects zooming past would tend to survive and reproduce. Consequently, it is **indeterminate** whether the biological function of G is to detect flies or to detect small black objects. It follows that, according to the teleological theory of content, the *content* of G is indeterminate: there is no way of establishing whether the content of G is 'fly' or 'small black thing'. The teleological theory of content, therefore, solves the disjunction problem only by introducing its own kind of indeterminacy. (See Fodor 1987: 104–6; 1990*c*.)

Teleological theorists have responded to this problem, but we won't delve further into the intricacies of the teleological theory. Sterelny 1990: Section 6.6 is a nice example of the kind of response a teleological theory can make to the indetermination problem. See also Millikan 1991.

9.4 Fodor's theory

In this section we will explore a theory of content proposed by the contemporary American philosopher Jerry Fodor (1987: 106–11; 1990*d*). I will begin by giving a loose, intuitive account of Fodor's theory. With that account in hand we can see how Fodor proposes to deal with the disjunction problem. After that, I'll give a more precise account of Fodor's theory, and show how it deals with at least one of the problems which flummoxed the causal theory of content. I'll close this section with a skeptical remark.

Recall the example of the disjunction problem given in Section 9.2. Since both dogs and sheep-on-foggy-evenings cause Bloggs to have DOG tokens, the causal theory of content is committed to the claim that Bloggs's DOG tokens are about dogs-or-sheep-on-foggy evenings ('dogs-or-sheep' for short). Fodor begins to address this problem by observing that the causal connection between sheep and DOGs depends on the causal connection between dogs and DOGS. That is, if there

were no sheep, dogs would still cause DOGs; but if there were no dogs, sheep would not cause DOGs.

Fodor then goes on to propose that content is determined only by those causal relations between a thing in the world and a mental representation that are independent of other such causal relations. DOG is about dogs rather than sheep because the causal relationship between dogs and DOGs is independent of that between sheep and DOGs, but not vice versa. And DOG is about dogs rather than dogs-or-sheep because the causal relationship between dogs and DOGs is independent of that between dogs-or-sheep and DOGs, but not vice versa. The problem of disjunction thus appears to have been vanquished.

Recall that in Section 9.2 we noted that the causal theory has a problem with, amongst other things, thoughts about nonexistent entities like the Easter Bunny. Since the Easter Bunny does not exist, it can't be the case that anybody's EASTER BUNNY tokens were caused by, and only by, the Easter Bunny. How does Fodor's theory deal with thoughts about nonexistent objects? This is where we must abandon the loose, intuitive account of Fodor's theory and consider a more precise version.

Fodor articulates his own theory as follows. (Note that I have used capitals for the names of mental representations (e.g. COW) whereas Fodor himself forms the names of mental representations by using inverted commas (e.g. 'cow'). Nothing at all turns on this typographic difference.)

> 'Cow' means *cow* if (i) there is a nomic relation between the property of being a cow and the property of being a cause of 'cow' tokens; and (ii) if there are nomic relations between other properties and the property of being a cause of 'cow' tokens, then the latter nomic relations depend asymmetrically upon the former. (Fodor 1990*d*: 93)

Let's unpack this a bit. First, notice that Fodor uses the expression 'nomic relation'. A nomic relation is a law-like relation; that is, a relation which holds (or would hold) under a very wide range of conditions. Second, note that nomic relations exist between *properties*. That's why Fodor talks about, for example, the property of being a cow rather than about cows. Here's an example of a nomic relation. In the case of water at sea level there's a nomic relation between the property of being at 100°C (212°F) and the property of boiling. This is a nomic relation because it holds (or would hold) under a very wide range of conditions: any sample of water which is located at sea-level will boil at 100°C. Finally, notice that Fodor says that one lot of nomic relations **asymmetrically depend** upon another nomic relation. Here's an example of asymmetric dependence. Say that Joey is the son of Kanga. In that case, whilst Kanga could have existed without Joey existing, Joey could not exist without Kanga existing. There is an asymmetry in their relations of dependence: one depends on the other but not vice versa.

Putting all this together we can say that, according to Fodor, DOGs are about dogs not sheep because: (i) there is a nomic relation between the property of being a dog and the property of being a cause of DOGs; and (ii) whilst there is also a nomic relation between the property of being a sheep and the property of being a cause of DOGs, the second nomic relation asymmetrically depends on the first one. Phew!

Now let's apply Fodor's official version of his theory to the case of Bloggs's EASTER BUNNY tokens. EASTER BUNNYs are about the Easter Bunny if: (i) there is a nomic relation between the property of being the Easter Bunny and the property of being a cause of EASTER BUNNYs; and (ii) if other properties are nomically related to the property of being a cause of EASTER BUNNYs, the latter nomic relations *asymmetrically depend* on the former. Now, on the assumption that the Easter Bunny doesn't exist, there can be no *causal* relations between the Easter Bunny and EASTER BUNNY tokens. However, Fodor insists that there is still a *nomic* relation between the property of being the Easter Bunny and the property of being a cause of EASTER BUNNYs. That is, he insists that *if* the Easter Bunny existed then the Easter Bunny would be a cause of EASTER BUNNYs, and so (other things being equal) EASTER BUNNYs are about the Easter Bunny.

Should Fodor be so insistent? How can he be so sure about the nomic relations of nonexistent properties? Well, we can say at least this much in his defense. Here's an example of a nonexistent property: the property of being Hitler's atom bomb. That's a nonexistent property because the Nazis never got around to building one. (And that, to put it mildly, is a Good Thing.) Nevertheless, there does seem to be a nomic relation between the property of being Hitler's atom bomb and the property of being a cause of London's destruction. After all, it seems quite likely that had Hitler got the bomb he would have dropped it on London. So the idea of nomic relations between nonexistent properties is not unintelligible.

So far we have seen how Fodor can with some plausibility respond to the disjunction problem, and to the problem of nonexistent objects. However, at least one problem that arose for the causal theory also arises for Fodor's theory—the depth problem. In Section 9.2 we noted that, whilst it's true that dogs cause DOGs, dogs also cause patterns of activation on the retina which in turn cause DOGs. We called those patterns 'd-patterns' and asked why, according to the causal theory, the content of DOGs isn't d-patterns or dogs-or-d-patterns. Now let's consider this example from the perspective of Fodor's theory. For ease of expression I'll revert to the loose, intuitive version of the theory. According to Fodor's theory, DOGs will be about dogs rather than d-patterns if the causal link between dogs and DOGs is independent of that between d-patterns and DOGs, but not vice versa. But there is at least one situation in which the causal link between d-patterns and DOGs is independent of that between dogs and DOGs. Imagine that there's a break in the

causal chain leading from dogs to Bloggs's d-patterns. (Maybe Bloggs has suddenly developed cataracts.) In that case dogs wouldn't cause DOGs but d-patterns would still cause DOGs. Consequently, it's not the case that the causal relation between d-patterns and DOGs is dependent on that between dogs and DOGs, and so Fodor is committed to saying that the content of Bloggs's DOG tokens is dogs-or-d-patterns. In other words, the depth problem remains a concern. (For a different take on a similar example see Carruthers 2000: 141.)

9.5 Functional role theory

According to functionalism, mental states are the occupants of characteristic causal (or 'functional') roles (see Chapter 4). A thoroughgoing functionalist will insist that all the features of a mental state M are determined by M's causal role. It follows that the *content* of M is determined by its causal role. A functional role theory of content offers an account of how causal role determines content. (Notice that I said that a *thoroughgoing* functionalist will insist that all the features of a mental state are determined by its causal role. In my view, if you're not a thoroughgoing functionalist then you're not a functionalist at all—you're just someone who (sensibly) thinks that causal roles are important. I suspect, though, that the majority of philosophers won't go along with this terminological stricture.)

Here's how functionalist role theories of content usually go. Notice that a person's mental states typically form a causal network. For example, Bloggs's belief that it's Thursday caused him to believe that tomorrow is Friday; his belief that tomorrow is Friday, together with his belief that Friday is payday, caused him to believe that tomorrow's payday; and his belief that tomorrow's payday caused him to believe that tomorrow he will have money to spend.

In addition to the causal network in which mental states are embedded, there is typically an *inferential* network in which the *contents* of those beliefs are embedded. Notice that the contents of Bloggs's beliefs in the example just given take the form of a rational argument from a series of premises to the conclusion 'I (Bloggs) will have money to spend tomorrow'. The argument is represented diagrammatically in Figure 9.2. (Note that some of the premises of this argument have been suppressed, but it'll do for present purposes.)

So far we have simply noted the existence of two networks: a causal one linking mental states and an inferential one linking the contents of mental states. According to functional role theories of content, we assign content to mental states by mapping the inferential network onto the causal one. Figure 9.3 gives the structure of the causal network for the example we are considering.

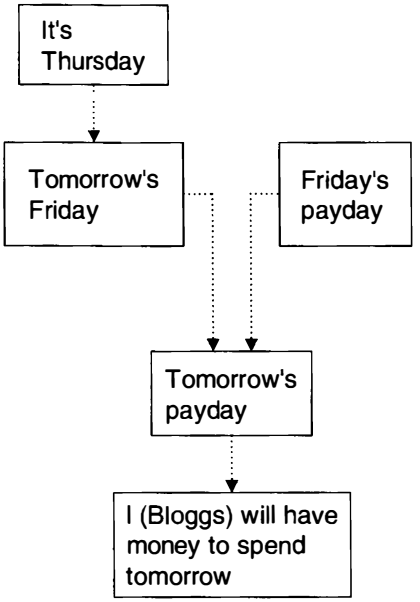

Figure 9.2 An inferential network

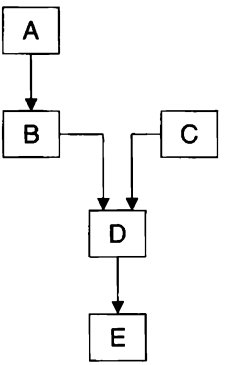

Figure 9.3 A causal network involving five beliefs (A–E)

Notice that I have identified the beliefs in the causal network with letters rather than by content; that is, I have used labels like 'A' rather than 'The belief that it is Thursday'. This is because the whole point of the exercise is to see how functional role semantics attributes contents to mental states. The aim is to figure out the contents of beliefs A–E.

Now it is clear that the network in Figure 9.2 has the same structure as that in Figure 9.3; that is, they are *isomorphic*. So, according to the function role theory of

content, we attribute to each mental state in the causal network the contents of the corresponding node in the inferential network:

Content of A → It's Thursday

Content of B → Tomorrow's Friday

Content of C → Friday's payday

Content of D → Tomorrow's payday

Content of E → I (Bloggs) will have money to spend tomorrow

Unfortunately, there are at least four difficulties with this proposal.

First difficulty. There's a problem about uniqueness. Setting aside issues of vagueness and ambiguity, it's plausible that each thought has a unique content. However, the functional role theory of content doesn't guarantee a unique assignment of contents to mental states. To see this, consider the inferential network given in Figure 9.4. (Once again there are a number of suppressed premises.)

The structure of the inferential network given in Figure 9.4 is isomorphic to the causal structure given in Figure 9.3. Therefore the functional role theory of content licences the following attributions of content to mental states A–E:

Content of A → It's Sunday

Content of B → Tomorrow's Monday

Content of C → Monday's mother's washing day

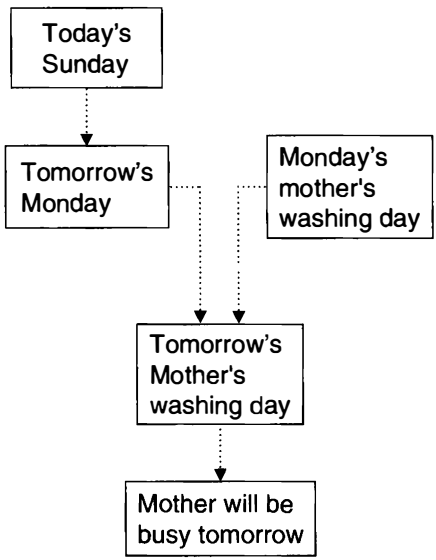

Figure 9.4 Another inferential network that is isomorphic to the causal network given in Figure 9.3

Content of D → Tomorrow's mother's washing day

Content of E → Mother will be busy tomorrow

Consequently, the attributions of content to mental states licenced by functional role semantics are not unique; for example, the theory attributes both the content 'It's Thursday' and the content 'It's Sunday' to mental state A. Moreover, with a little bit of ingenuity we can create an indefinite number of arguments that are isomorphic to the causal structure given in Figure 9.3. Functional role semantics doesn't just licence a little bit of ambiguity: it licences an indefinite amount.

Second difficulty. The content of a mental state is an important determinant of the causal relations of that state. (For more on the issue of content and mental causation see Sections 10.3 and 10.4.) It's because Bloggs has a belief with the content *Sally is cute and cuddly* that he comes to have a belief with the content *Sally is cute*. Had Bloggs begun with a belief with the content *Neil is cute and cuddly* he would not have thereby come to have a belief with the content *Sally is cute*. But if content is an important determinant of the causal relations of mental states, it follows that the causal relations of mental states don't determine their content. In other words, the functional role theory of content has put the cart before the horse: the content of a mental state is not given by that state's causal powers; rather the causal powers of a mental state are given (in part) by its content.

Third difficulty. The functional role approach to content relies on mapping a causal network of mental states onto an inferential network. How, then, do we obtain the inferential network? Well, we develop a network of propositions which are logically or evidentially related to each other. Unfortunately, the mental states of real humans don't always respect the canons of logic and evidence: sometimes we're irrational. For example, people routinely commit the 'gambler's fallacy': they conclude that a random event is more likely to happen just because it hasn't happened for a while. Note, though, that we still attribute contentful states to people who commit the gambler's fallacy. We say, for example, that Bloggs thinks that the six is sure to come up soon. Since we are not always rational, we cannot assign content simply by mapping an inferential network onto the causal one.

Fourth difficulty. According to the functional role theory, the content of a mental state is determined by the causal relations of that state: change the causal relations and you change the state's content. Say that Bloggs believes snow is white but he doesn't realize that it sometimes snows in Pittsburgh. Now imagine that Sally tells him about the snow in Pittsburgh. In that case the causal relations of his belief that snow is white have just changed a tiny bit. Consequently, the content of his belief that snow is white has changed. But surely that's wrong: the content of his belief that snow is white remains the same.

9.6 Wide or narrow?

In recent decades a great deal of attention has been paid to the issue of **wide** versus **narrow content**. The wide/narrow distinction was originally drawn by the contemporary American philosopher Hilary Putnam, although Putnam was primarily concerned with the meaning of linguistic items rather than mental content (see Putnam 1975). In what follows we will focus on the wide/narrow distinction as it applies to mental content.

Here's an example much like that which Putnam used. Bloggs frequently has thoughts about water, and since water is H_2O, when Bloggs has a water thought he's thinking about H_2O. Now, in a distant part of the universe there is a planet that is almost exactly the same as Earth, and living on that planet is a guy who's almost exactly like Bloggs. Let's call that planet **Twin-Earth** and call the guy who's almost exactly like Bloggs 'Twin-Bloggs'.

I said that Twin-Earth is almost exactly like Earth, and that Twin-Bloggs is almost exactly like Bloggs. In fact, with one small exception, Twin-Earth is an atom-for-atom duplicate of Earth, and Twin-Bloggs is an atom-for-atom duplicate of Bloggs. The exception is this: whereas here on Earth the clear liquid which fills lakes, comes out of taps, and is essential for life is H_2O, on Twin-Earth the clear liquid which fills lakes, comes out of taps, and is essential for life is XYZ. (Or, as I will say henceforth, whilst the 'wet stuff' on Earth is H_2O, the 'wet stuff' on Twin-Earth is XYZ.) Moreover, in all superficial respects H_2O is strikingly similar to XYZ—so much so that without a chemical analysis you can't tell them apart.

Now let's consider Twin-Bloggs's thoughts about the wet stuff on Twin-Earth. Bloggs's thoughts about the wet stuff on Earth are about H_2O; it's implausible, though, that Twin-Bloggs is thinking about H_2O. After all, he's never seen, touched, or drunk any H_2O, and he might not even know that it exists. Rather, when Twin-Bloggs thinks about the wet stuff on Twin-Earth he's thinking about XYZ. So the content of Bloggs's thoughts about the wet stuff is distinct from that of Twin-Bloggs's thoughts about the wet stuff. Bloggs's thought is about H_2O; Twin-Bloggs's thought is about XYZ.

What's striking about this case is that, even though Bloggs and Twin-Bloggs's have brains which are in all relevant respects identical, their thoughts about the wet stuff have different contents. It follows that the content of our thought is not entirely determined by our brain states: it's possible for two people to have identical brain states and yet have thoughts with different contents. To use an old slogan: 'Meanings ain't in the head' (Putnam 1975).

With this example before us, we can appreciate the difference between wide and narrow content. Philosophers say that Bloggs's beliefs about wet stuff have different *wide* content to Twin-Bloggs's beliefs about the wet stuff. The contents of their

beliefs are wide in that they are **individuated** (or distinguished) by what's going on in the world external to the believers' heads. Bloggs and Twin-Bloggs's thoughts about the wet stuff are distinct, not because their brains are in relevant respects distinct, but because their *environments* are distinct: one's in an H_2O-containing environment, the other an XYZ-containing environment.

Whilst we can recognize a sense in which the content of Bloggs's belief differs from that of Twin-Bloggs's, there's also a sense in which the contents of their beliefs are the *same*. Say that Bloggs believes that he should drink eight glasses of water every day, and that he expresses his belief by saying, 'I should drink eight glasses of water every day'. Then Twin-Bloggs will have a belief which he expresses with the phrase, 'I should drink eight glasses of water every day'. Moreover, note that Bloggs's belief will cause him to behave in certain ways: other things being equal, he'll drink eight glasses of the stuff he calls 'water' every day. Similarly, Twin-Bloggs's belief will cause him to act in certain ways: other things being equal, he'll drink eight glasses of the stuff he calls 'water' every day. Finally, Bloggs and Twin-Bloggs will both feel the same way about the stuff they call 'water'. If Bloggs has a phobia about washing in the stuff he calls 'water', then Twin-Bloggs will have a phobia about washing in the stuff *he* calls water.

So far we have recognized that in many ways Bloggs and Twin-Bloggs would seem to have identical beliefs about the wet stuff. But identity of belief implies identity of content. So if there's a sense in which Bloggs and Twin-Bloggs have the same beliefs about the wet stuff, then there's a sense in which their beliefs about the wet stuff have the same content. The expression *narrow content* is used to pick out the content which Bloggs and Twin-Bloggs share.

The focus of our discussion so far has been Putnam's famous Twin-Earth example. The contemporary American philosopher Tyler Burge (1979) has provided another kind of example of wide content. Say that Bloggs wakes up one morning with a pain in his leg, halfway between his knee and his hip. 'Goodness,' thinks Bloggs, 'I've got arthritis in my thigh.' In fact, arthritis is, by definition, inflammation of a *joint*, so Bloggs can't have arthritis in his thigh. Consequently, Bloggs's belief that he has arthritis in his thigh is false.

Now consider a slightly different situation. Imagine that the medical profession uses 'arthritis' not for inflammation of the joints but for leg pain; that is, imagine that 'arthritis' means 'pain in the leg'. Everything else about the situation remains as before; in particular, Bloggs's brain states are exactly as they were before. But now when Bloggs wakes up in the morning and thinks, 'Goodness, I've got arthritis in my thigh', he has a *true* belief. He really does have arthritis since he has a pain in his thigh and 'arthritis' means 'pain in the leg'.

It's clear that the content of Bloggs's beliefs about arthritis are determined by facts outside Bloggs's head; in particular, they're determined by facts about the

way the word 'arthritis' is used in the broader community. So once again we have a case of wide content: meaning ain't in the head.

In everyday life we typically pick out beliefs by their wide content; that is, we identify beliefs in terms of objects external to the believer. (Notice that the examples used by Putnam and Burge appeal to our everyday judgements about content attribution.) However, there's a strong case to be made for arguing that scientific psychology should distinguish beliefs in terms of their *narrow* content. Imagine that Bloggs is transported to Twin-Earth and interpret the content of his desire to drink eight glasses of water per day narrowly. Relying on the principle that, other things being equal, people act so as to satisfy their desires, we can predict that when he is on Twin-Earth Bloggs will drink eight glasses of the wet stuff per day; that is, he will drink eight glasses of XYZ. That sounds like the right prediction to make—after all, he won't be drinking eight glasses of H_2O per day because there's no H_2O for him to drink. Now imagine that Bloggs is transported to Twin-Earth and interpret the content of his desire to drink eight glasses of water per day widely. Understood widely, his desire to drink eight glasses of water per day is the desire to drink eight glasses of H_2O per day. If we now apply the principle that, other things being equal, people act so as to satisfy their desires, we end up predicting that on Twin-Earth Bloggs will drink eight glasses of H_2O per day. And that's got to be wrong since, as we have noted, there's no H_2O for him to drink. Since scientific psychology is in the business of predicting behavior, it seems that scientific psychology should individuate beliefs by their narrow content.

The conclusion I have just drawn is the standard one. However, it's worth noting that not everyone is ready to abandon wide content for predictive purposes. For more on this topic see Further Reading, below.

SUMMARY

(1) Some mental states have content; that is, they are *about* things.

(2) Theories of content attempt to explain how mental states get to be about things.

(3) According to the resemblance theory of content, mental states are about what they resemble. This theory faces severe difficulties.

(4) According to the causal theory of content, dog thoughts are about dogs because they are caused by, and only by, dogs.

(5) The most widely discussed difficulty for the causal theory is the disjunction problem which arises because, in cases of misidentification, dog thoughts are caused by non-dogs—for example, by sheep. In that case the causal theory is committed to the claim that dog thoughts are about dogs-or-sheep.

(6) According to the teleological theory, the content of a thought is determined under Normal conditions. Normal conditions are those under which the relevant organisms evolved.

(7) Fodor appeals to asymmetric dependencies to solve the disjunction problem. Dog thoughts are about dogs rather than sheep because, whilst dogs would cause dog thoughts even if sheep didn't cause dog thoughts, sheep would not cause dog thoughts if dogs didn't cause dog thoughts.

(8) Functional role theories assign content by mapping the causal (or 'functional') relations of mental states onto a network of inferential relations.

(9) The content of a thought is said to be *wide* if it depends on the environment of the thinker; content is said to be *narrow* if it is independent of the thinker's environment.

(10) There are reasons for thinking that scientific psychology should focus on mental states individuated by their narrow content.

FURTHER READING

Good textbook-style introductions to the problem of content are found in Sterelny 1990: Ch. 6; Braddon-Mitchell and Jackson 1996: Part 3; and Kim 1996: Ch. 8. Of these Kim is the easiest; Sterelny focuses on causal and covariance theories.

A nice book-length introduction to the issue of content is Cummins 1989.

The most detailed account of functional role semantics is probably Brian Loar's *Mind and Meaning* (1981). That book is considerably more difficult than this one.

'Fodor's guide to mental representation' (Fodor 1990*b*) is both a classic and surprisingly readable. An early version of the causal theory is Fred Dretske's *Knowledge and the Flow of Information* (1981), and an early version of the teleological theory is Ruth Millikan's *Language, Thought and Other Biological Categories* (1984). The former is hard; the latter very dense. Millikan offers a much more user-friendly version of her views in Millikan 1986. Fodor 1990*c* contains a brilliant discussion of both the causal and teleological theories. See also Fodor 1987: Ch. 4. He presents his covariance theory in Fodor 1987: 106–11; 1990*c*.

The issues surrounding wide and narrow content are introduced in Sterelny 1990: Ch. 5; Braddon-Mitchell and Jackson 1996: Ch. 12; and Kim 1996: 193–207. The classic papers in this area are Putnam 1975 and Burge 1979; 1986. The Burge papers in particular are not easy.

An important—and highly skeptical—discussion of mental representation is Stephen Stich's classic, *From Folk Psychology to Cognitive Science* (Stich 1983). It contains important material on narrow content. See especially Ch. 4. It's not easy, but it's worth the effort.

TUTORIAL QUESTIONS

(1) Describe, and discuss one difficulty with, the resemblance theory of content.

(2) Describe the causal theory of content.

(3) What's the depth problem?

(4) What's the disjunction problem?

(5) 'The ancestors of the modern frog survived because they snapped at flies, not because they snapped at little black things.' Discuss.

(6) Give an example of an asymmetric dependency.

(7) Describe Fodor's response to the disjunction problem.

(8) What did Putnam mean when he said that 'Cut the pie anyway you like, "meanings" just ain't in the head' (Putnam 1975)?