

Metaloque: What Is an Instinct?*

Daughter: Daddy, what is an instinct?

Father: An instinct, my dear, is a explanatory principle. D: But what does it explain?

F: Anything—almost anything at all. Anything you want it to explain.

D: Don't be silly. It doesn't explain gravity.

F: No. But that is because nobody wants "instinct" to explain gravity. If they did, it would explain it. We could simply say that the moon has an instinct whose strength varies inversely as the square of the distance . . .

D: But that's nonsense, Daddy.

F: Yes, surely. But it was you who mentioned "instinct," not I.

D: All right—but then what does explain gravity?

F: Nothing, my dear, because gravity is an explanatory principle.

D: Oh.

D: Do you mean that you cannot use one explanatory principle to explain another? Never?

F: Hmm . . . hardly ever. That is what Newton meant when he said, "hypotheses non fingo."

D: And what does that mean? Please.

F: Well, you know what "hypotheses" are. Any statement linking together two descriptive statements is an hypothesis. If you say that there was a full moon on February 1st and another on March 1st; and then you link these two observations together in any way, the statement which links them is an hypothesis.

D: Yes—and I know what non means. But what's fingo?

F: Well—fingo is a late Latin word for "make." It forms a verbal noun fictio from which we get the word "fiction."

D: Daddy, do you mean that Sir Isaac Newton thought that all hypotheses were just made up like stories?

F: Yes—precisely that.

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D: But didn't he discover gravity? With the apple? F: No, dear. He invented it.

D: Oh.... Daddy, who invented instinct?

F: I don't know. Probably biblical.

D: But if the idea of gravity links together two descriptive statements, it must be an hypothesis.

F: That's right.

D: Then Newton did fingo an hypothesis after all.

F: Yes—indeed he did. He was a very great scientist. D : Oh.

D: Daddy, is an explanatory principle the same thing as an hypothesis?

F: Nearly, but not quite. You see, an hypothesis tries to explain some particular something but an explanatory principle—like "gravity" or "instinct"—really explains nothing. It's a sort of conventional agreement between scientists to stop trying to explain things at a certain point.

D: Then is that what Newton meant? If "gravity" explains nothing but is only a sort of full stop at the end of a line of explanation, then inventing gravity was not the same as inventing an hypothesis, and he could say he did not fingo any hypotheses.

F: That's right. There's no explanation of an explanatory principle. It's like a black box.

D: Oh.

D: Daddy, what's a black box?

F: A "black box" is a conventional agreement between scientists to stop trying to explain things at a certain point. I guess it's usually a temporary agreement.

D: But that doesn't sound like a black box.

F: No—but that's what it's called. Things often don't sound like their names.

D: No.

F: It's a word that comes from the engineers. When they draw a diagram of a complicated machine, they use a sort of shorthand. Instead of drawing all the details, they put a box to stand for a

whole bunch of parts and label the box with what that bunch of parts is supposed to do.

D: So a "black box" is a label for what a bunch of things are supposed to do... .

F: That's right. But it's not an explanation of how the bunch works.

D: And gravity?

F: Is a label for what gravity is supposed to do. It's not an explanation of how it does it.

D: Oh.

D: Daddy, what is an instinct?

F: It's a label for what a certain black box is supposed to do.

D: But what's it supposed to do?

F: Hm. That is a very difficult question

D: Go on.

F: Well. It's supposed to control—partly control—what an organism does.

D: Do plants have instincts?

F: No. If a botanist used the word "instinct," when talking about plants, he would be accused of zoomorphism. D: Is that bad?

F: Yes. Very bad for botanists. For a botanist to be guilty of zoomorphism is as bad as for a zoologist to be guilty of anthropomorphism. Very bad, indeed.

D: Oh. I see.

D: What did you mean by "partly control"?

F: Well. If an animal falls down a cliff, its falling is controlled by gravity. But if it wiggles while falling, that might be due to instinct.

D: Self-preservative instinct?

F: I suppose so.

D: What is a self, Daddy? Does a dog know it has a self?

F: I don't know. But if the dog does know it has a self, and it wiggles in order to preserve that self, then its wiggling is rational, not instinctive.

D: Oh. Then a "self-preservative instinct" is a contradiction. F: Well, it's a sort of halfway house on the road to anthropomorphism.

D: Oh. That's bad.

F: But the dog might know it had a self and not know that that self should be preserved. It would then be rational to not wiggle. So if the dog still wiggles, this would be instinctive. But if it learned to wiggle, then it would not be instinctive.

D: Oh.

D: What would not be instinctive, Daddy? The learning or the wiggling?

F: No—just the wiggling.

D: And the learning would be instinctive?

F: Well . . . yes. Unless the dog had to learn to learn. D : Oh.

D: But, Daddy, what is instinct supposed to explain?

F: I keep trying to avoid that question. You see, instincts were invented before anybody knew anything about genetics, and most of modern genetics was discovered before anybody knew anything about communication theory. So it is doubly difficult to translate "instinct" into modern terms and ideas.

D: Yes, go on.

F: Well, you know that in the chromosomes, there are genes; and that the genes are some sort of messages which have to do with how the organism develops and with how it behaves.

D: Is developing different from behaving, Daddy? What's the difference? And which is learning? Is it "developing" or "behaving?"

F: No! No! Not so fast. Let's avoid those questions by putting developing-learning-behavior all together in one basket. A single spectrum of phenomena. Now let's try to say how instinct contributes to explaining this spectrum.

D: But is it a spectrum?

F: No—that's only a loose way of talking.

D: Oh.

D: But isn't instinct all on the behavior end of that "spectrum"? And isn't learning all determined by environment and not chromosomes?

F: Let's get this clear—that there is no behavior and no anatomy and no learning in the chromosomes them-selves.

D: Don't they have their own anatomy?

F: Yes, of course. And their own physiology. But the anatomy and physiology of the genes and chromosomes is not the anatomy and physiology of the whole animal.

D: Of course not.

F: But it is about the anatomy and physiology of the whole animal.

D: Anatomy about anatomy?

F: Yes, just as letters and words have their own forms and shapes and those shapes are parts of words or sentences and so on—which may be about anything.

D: Oh.

D: Daddy, is the anatomy of the genes and chromosomes about the anatomy of the whole animal? And the physiology of the genes and chromosomes about the physiology of the whole animal?

F: No, no. There is no reason to expect that. It's not like that. Anatomy and physiology are not separate in that way.

D: Daddy, are you going to put anatomy and physiology together in one basket, like you did developing-learning-behavior?

F: Yes. Certainly.

D : Oh.

D: The same basket?

F: Why not? I think developing is right in the middle of that basket. Right smack in the middle.

D: Oh.

D: If chromosomes and genes have anatomy and physiology, they must have development.

F: Yes. That follows.

D: Do you think their development could be about the development of the whole organism?

F: I don't even know what that question would mean.

D: I do. It means that the chromosomes and genes would be changing or developing somehow while the baby is developing, and the changes in the chromosomes would be about the changes in the baby. Controlling them or partly controlling them.

F: No. I don't think so.

D: Oh.

D: Do chromosomes learn?

F: I don't know.

D: They do sound rather like black boxes.

F: Yes, but if chromosomes or genes can learn, then they are much more complicated black boxes than anybody at present believes. Scientists are always assuming or hoping that things are simple, and then discovering that they are not.

D: Yes, Daddy.

D: Daddy, is that an instinct?

F: Is what an instinct?

D: Assuming that things are simple.

F: No. Of course not. Scientists have to be taught to do that.

D: But I thought no organism could be taught to be wrong every time.

F: Young lady, you are being disrespectful and wrong. In the first place, scientists are not wrong every time they assume that things are simple. Quite often they are right or partly right and still more often, they think they are right and tell each other so. And that is enough reinforcement. And, anyhow you are wrong in saying that no organism can be taught to be wrong every time.

D: When people say that something is "instinctive," are they trying to make things simple? F: Yes, indeed.

D: And are they wrong?

F: I don't know. It depends on what they mean.

D: Oh.

D: When do they do it?

F: Yes, that's a better way of asking the question. They do it when they see a creature do something, and they are sure: first, that the creature did not learn how to do that something and, second, that the creature is too stupid to understand why it should do that.

D: Any other time?

F: Yes. When they see that all members of the species do the same things under the same circumstances; and when they see the

animal repeating the same action even when the circumstances are changed so that the action fails.

D: So there are four ways of knowing that it's instinctive. F: No. Four conditions under which scientists talk about instinct.

D: But what if one condition isn't there? An instinct sounds rather like a habit or a custom.

F: But habits are learned.

D: Yes.

D: Are habits always twice learned?

F: What do you mean?

D: I mean—when I learn a set of chords on the guitar, first I learn them or find them; and then later when I practice, I get the habit of playing them that way. And sometimes I get bad habits.

F: Learning to be wrong every time?

D: Oh—all right. But what about that twice-over business? Would both parts of learning be not there if guitar playing were instinctive?

F: Yes. If both parts of learning were clearly not there, scientists might say that guitar playing is instinctive.

D: But what if only one part of learning was missing?

F: Then, logically, the missing part could be explained by "instinct."

D: Could either part be missing?

F: I don't know. I don't think anybody knows.

D: Oh.

D: Do birds practice their songs?

F: Yes. Some birds are said to practice.

D: I guess instinct gives them the first part of singing, but they have to work on the second part.

F: Perhaps.

D: Could practicing be instinctive?

F: I suppose it could be—but I am not sure what the word "instinct" is coming to mean in this conversation.

D: It's an explanatory principle, Daddy, just like you said... There's one thing I don't understand.

F: Yes?

D: Is there a whole lot of instinct? Or are there lots of instincts?

- F: Yes. That's a good question, and scientists have talked a great deal about it, making lists of separate instincts and then lumping them together again.
- D: But what's the answer?
- F: Well. It's not quite clear. But one thing is certain: That explanatory principles must be not multiplied beyond necessity.
- D: And that means? Please?
- F: It's the idea behind monotheism—that the idea of one big God is to be preferred to the idea of two little gods.
- D: Is God an explanatory principle?
- F: Oh, yes—a very big one. You shouldn't use two black boxes—or two instincts—to explain what one black box would explain . . .
- D: If it were big enough.
- F: No. It means . . .
- D: Are there big instincts and little instincts?
- F: Well—as a matter of fact, scientists do talk as if there were. But they call the little instincts by other names —"reflexes," "innate releasing mechanisms," "fixed action patterns," and so on.
- D: I see—like having one big God to explain the universe and lots of little "imps" or "goblins" to explain the small things that happen.
- F: Well, yes. Rather like that.
- D: But, Daddy, how do they lump things together to make the big instincts?
- F: Well, for example, they don't say that the dog has one instinct which makes it wiggle when it falls down the cliff and another which makes it run away from fire.
- D: You mean those would both be explained by a self-preservative instinct?
- F: Something like that. Yes.
- D: But if you put those different acts together under one instinct, then you cannot get away from saying that the dog has the use of the notion of "self."
- F: No, perhaps not.
- D: What would you do about the instinct for the song and the instinct for practicing the song?
- F: Well—depending on what the song is used for. Both song and practice might be under a territorial instinct or a sexual instinct.

D: I wouldn't put them together.

F: No?

D: Because what if the bird also practiced picking up seed or something? You'd have to multiply the instincts —what is it?— beyond necessity.

F: What do you mean?

D: I mean a food-getting instinct to explain the practicing picking up seed, and a territory instinct for practicing song. Why not have a practicing instinct for both? That saves one black box.

F: But then you would throw away the idea of lumping together under the same instinct actions which have the same purpose.

D: Yes—because if the practicing is for a purpose—I mean, if the bird has a purpose—then the practicing is rational and not instinctive. Didn't you say something like that?

F: Yes, I did say something like that.

D: Could we do without the idea of "instinct"?

F: How would you explain things then?

D: Well. I'd just look at the little things: When some-thing goes "pop," the dog jumps. When the ground is not under his feet, he wiggles. And so on.

F: You mean—all the imps but no gods?

D: Yes, something like that.

F: Well. There are scientists who try to talk that way, and it's becoming quite fashionable. They say it is more objective.

D: And is it?

F: Oh, yes.

D: What does "objective" mean?

F: Well. It means that you look very hard at those things which you choose to look at.

D: That sounds right. But how do the objective people choose which things they will be objective about?

F: Well. They choose those things about which it is easy to be objective.

D: You mean easy for them?

F: Yes.

- D: But how do they know that those are the easy things?
- F: I suppose they try different things and find out by experience.
- D: So it's a subjective choice?
- F: Oh, yes. All experience is subjective.
- D: But it's human and subjective. They decide which bits of animal behavior to be objective about by consulting human subjective experience. Didn't you say that anthropomorphism is a bad thing?
- F: Yes—but they do try to be not human.
- D: Which things do they leave out?
- F: What do you mean?
- D: I mean—subjective experience shows them which things it is easy to be objective about. So, they go and study those things. But which things does their experience show are difficult? So that they avoid those things. Which are the things they avoid?
- F: Well, you mentioned earlier something called "practice." That's a difficult thing to be objective about. And there are other things that are difficult in the same sort of way. Play, for example. And exploration. It's difficult to be objective about whether a rat is really exploring or really playing. So they don't investigate those things. And then there's love. And, of course, hate.
- D: I see. Those are the sorts of things that I wanted to invent separate instincts for. F: Yes—those things. And don't forget humor.
- D: Daddy—are animals objective?
- F: I don't know—probably not. I don't think they are subjective either. I don't think they are split that way.
- D: Isn't it true that people have a special difficulty about being objective about the more animal parts of their nature?
- F: I guess so. Anyhow Freud said so, and I think he was right. Why do you ask?
- D: Because, oh dear, those poor people. They try to study animals. And they specialize in those things that they can study objectively. And they can only be objective about those things in

which they themselves are least like animals. It must be difficult for them.

F: No—that does not necessarily follow. It is still possible for people to be objective about some things in their animal nature. You haven't shown that the whole of animal behavior is within the set of things that people cannot be objective about.

D: No?

D: What are the really big differences between people and animals?

F: Well—intellect, language, tools. Things like that.

D: And it is easy for people to be intellectually objective in language and about tools?

F: That's right.

D: But that must mean that in people there is a whole set of ideas or whatnot which are all tied together. A sort of second creature within the whole person, and that second creature must have a quite different way of thinking about everything. An objective way.

F: Yes. The royal road to consciousness and objectivity is through language and tools.

D: But what happens when this creature looks at all those parts of the person about which it is difficult for people to be objective? Does it just look? Or does it meddle?

F: It meddles.

D: And what happens?

F: That's a very terrible question.

D: Go on. If we are going to study animals, we must face that question.

F: Well . . . The poets and artists know the answer better than the scientists. Let me read you a piece:

Thought chang'd the infinite to a serpent, that which pitieth
To a devouring flame; and man fled from its face and hid
In forests of night: then all the eternal forests were' divided
Into earths rolling in circles of space, that like an ocean rush'd
And overwhelmed all except this finite wall of flesh.
Then was the serpent temple form'd, image of infinite
Shut up in finite revolutions; and man became an

Angel, Heaven a mighty circle turning, God a tyrant crown'd.*

D: I don't understand it. It sounds terrible, but what does it mean?

F: Well. It's not an objective statement, because it is talking about the effect of objectivity—what the poet calls here "thought" upon the whole person or the whole of life. "Thought" should remain a part of the whole but instead spreads itself and meddles with the rest.

D: Go on.

F: Well. It slices everything to bits.

D: I don't understand.

F: Well, the first slice is between the objective thing and the rest. And then inside the creature that's made in the model of intellect, language, and tools, it is natural that purpose will evolve. Tools are for purposes and anything which blocks purpose is a hindrance. The world of the objective creature gets split into "helpful" things and "hindering" things.

D: Yes. I see that.

F: All right. Then the creature applies that split to the world of the whole person, and "helpful" and "hindering" become Good and Evil, and the world is then split between God and the Serpent. And after that, more and more splits follow because the intellect is always classifying and dividing things up.

D: Multiplying explanatory principles beyond necessity? F: That's right.

D: So, inevitably, when the objective creature looks at animals, it splits things up and makes the animals look like human beings after their intellects have invaded their souls.

F: Exactly. It's a sort of inhuman anthropomorphism.

D: And that is why the objective people study all the little imps instead of the larger things?

F: Yes. It's called S-R psychology. It's easy to be objective about sex but not about love.

* Blake, W., 1794, *Europe a Prophecy*, printed and published by the author. (Italics added.)

D: Daddy, we've talked about two ways of studying animals—the big instinct way and the S-R way, and neither way seemed very sound. What do we do now?

F: I don't know.

D: Didn't you say that the royal road to objectivity and consciousness is language and tools? What's the royal road to the other half?

F: Freud said dreams.

D: Oh.

D: What are dreams? How are they put together?

F: Well—dreams are bits and pieces of the stuff of which we are made. The non-objective stuff.

D: But how are they put together?

F: Look. Aren't we getting rather far from the question of explaining animal behavior?

D: I don't know, but I don't think so. It looks as if we are going to be anthropomorphic in one way or another, whatever we do. And it is obviously wrong to build our anthropomorphism on that side of man's nature in which he is most unlike the animals. So let's try the other side. You say dreams are the royal road to the other side. So . . .

F: I didn't. Freud said it. Or something like it.

D: All right. But how are dreams put together?

F: Do you mean how are two dreams related to each other?

D: No. Because, as you said, they are only bits and pieces. What I mean is: How is a dream put together inside itself? Could animal behavior be put together in the same sort of way?

F: I don't know where to begin.

D: Well. Do dreams go by opposites?

F: Oh Lord! The old folk idea. No. They don't predict the future. Dreams are sort of suspended in time. They don't have any tenses.

D: But if a person is afraid of something which he knows will happen tomorrow, he might dream about it to-night?

F: Certainly. Or about something in his past. Or about both past and present. But the dream contains no label to tell him what it is "about" in this sense. It just is.

D: Do you mean it's as if the dream had no title page?

F: Yes. It's like an old manuscript or a letter that has lost its beginning and end, and the historian has to guess what it's all about and who wrote it and when—from what's inside it.

D: Then we're going to have to be objective, too?

F: Yes indeed. But we know that we have to be careful about it. We have to watch that we don't force the concepts of the creature that deals in language and tools upon the dream material.

D: How do you mean?

F: Well. For example: if dreams somehow have not tenses and are somehow suspended in time, then it would be forcing the wrong sort of objectivity to say that a dream "predicts" something. And equally wrong to say it is a statement about the past. It's not history.

D: Only propaganda?

F: What do you mean?

D: I mean—is it like the sort of stories that propagandists write which they say are history but which are really only fables?

F: All right. Yes. Dreams are in many ways like myths and fables. But not consciously made up by a propagandist. Not planned.

D: Does a dream always have a moral?

F: I don't know about always. But often, yes. But the moral is not stated in the dream. The psychoanalyst tries to get the patient to find the moral. Really the whole dream is the moral.

D: What does that mean?

F: I don't quite know.

D: Well. Do dreams go by opposites? Is the moral the opposite of what the dream seems to say?

F: Oh yes. Often. Dreams often have an ironic or sarcastic twist. A sort of *reductio ad absurdum*.

D: For example?

F: All right. A friend of mine was a fighter pilot in World War II. After the war he became a psychologist and had to sit for his

Ph. D. oral exam. He began to be terrified of the oral, but, the night before the exam, he had a nightmare in which he experienced again being in a plane which had been shot down. Next day he went into the examination without fear.

D: Why?

F: Because it was silly for a fighter pilot to be afraid of a bunch of university professors who couldn't really shoot him down.

D: But how did he know that? The dream could have been telling him that the professors would shoot him down. How did he know it was ironic?

F: Hmm. The answer is he didn't know. The dream doesn't have a label on it to say it is ironic. And when people are being ironic in waking conversation, they often don't tell you they are being ironic.

D: No. That's true. I always think it's sort of cruel. F: Yes. It often is.

D: Daddy, are animals ever ironic or sarcastic?

F: No. I guess not. But I am not sure that those are quite the words we should use. "Ironic" and "sarcastic" are words for the analysis of message material in language. And animals don't have language. It's perhaps part of the wrong sort of objectivity.

D: All right. Then do animals deal in opposites?

F: Well, yes. As a matter of fact, they do. But I'm not sure it's the same thing . . .

D: Go on. How do they? And when?

F: Well. You know how a puppy lies on his back and presents his belly to a bigger dog. That's sort of inviting the bigger dog to attack. But it works in the opposite way. It stops the bigger dog from attacking.

D: Yes. I see. It is a sort of use of opposites. But do they know that?

F: You mean does the big dog know that the little dog is saying the opposite of what he means? And does the little dog know that that is the way to stop the big dog?

D: Yes.

F: I don't know. I sometimes think the little dog knows a little more about it than the big dog. Anyhow, the little dog does not

give any signals to show that he knows. He obviously couldn't do that.

D: Then it's like the dreams. There's no label to say that the dream is dealing in opposites.

F: That's right.

D: I think we're getting somewhere. Dreams deal in opposites, and animals deal in opposites, and neither carries labels to say when they are dealing in opposites.

F: Hmm.

D: Why do animals fight?

F: Oh, for many reasons. Territory, sex, food . . .

D: Daddy, you're talking like instinct theory. I thought we agreed not to do that.

F: All right. But what sort of an answer do you want to the question, why animals fight?

D: Well. Do they deal in opposites?

F: Oh. Yes. A lot of fighting ends up in some sort of peacemaking. And certainly playful fighting is partly a way of affirming friendship. Or discovering or rediscovering friendship.

D: I thought so. . . .

D: But why are the labels missing? Is it for the same reason in both animals and dreams?

F: I don't know. But, you know, dreams do not always deal in opposites.

D: Does a dream always have a moral?

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D: But why are the labels missing? Is it for the same reason in both animals and dreams?

F: I don't know. But, you know, dreams do not always deal in opposites.

D: No—of course not—nor do animals.

F: All right then.

D: Let's go back to that dream. Its total effect on the man was the same as if somebody had said to him, " `you in a fighter plane' is not equal to `you in an oral exam.' "

F: Yes. But the dream didn't spell that out. It only says, "you in a fighter plane. It leaves out the "not," and it leaves out the instruction to compare the dream with something else and it doesn't say what he should compare it with.

D: All right. Let's take the "not" first. Is there any "not" in animal behavior?

F: How could there be?
D: I mean can an animal say by its actions, "I will not bite you"?
F: Well, to begin with. Communication by actions cannot possibly have tenses. They are only possible in language.
D: Didn't you say that dreams have no tenses?
F: Hmm. Yes, I did.
D: Okay. But what about "not". Can the animal say, "I am not biting you"?
F: That still has a tense in it. But never mind. If the animal is not biting the other, he's not biting it, and that's it.
D: But he might be not doing all sorts of other things, sleeping, eating, running, and so on. How can he say, "It's biting that I'm not doing"?
F: He can only do that if biting has somehow been mentioned.
D: Do you mean that he could say, "I am not biting you" by first showing his fangs and then not biting?
F: Yes. Something like that.
D: But what about two animals? They'd both have to show their fangs.
F: Yes.
D: And, it seems to me, they might misunderstand each other, and get into a fight.
F: Yes. There is always that danger when you deal in opposites and do not or cannot say what you are doing, especially when you do not know what you are doing. D: But the animals would know that they bared their fangs in order to say, "I won't bite you."
F: I doubt whether they would know. Certainly neither animal knows it about the other. The dreamer doesn't know at the beginning of the dream how the dream is going to end.
D: Then it's a sort of experiment... .
F: Yes.
D: So they might get into a fight in order to find out whether fighting was what they had to do.
F: Yes—but I'd rather put it less purposively—that the fight shows them what sort of relationship they have, after it. It's not planned.
D: Then "not" is really not there when the animals show their fangs?
F: I guess not. Or often not. Perhaps old friends might engage in playful fighting and know at the beginning what they are doing.

D: All right. Then the "not" is absent in animal behavior because "not" is part of verbal language, and there can-not be any action signal for, "not." And because there is no "not," the only way to agree on a negative is to act out the whole reductio ad absurdum. You have to act out the battle to prove it isn't one, and then you have to act out the submission to prove that the other won't eat you.

F: Yes.

D: Did the animals have to think that out?

F: No. Because it's all necessarily true. And that which is necessarily true will govern what you do regardless of whether you know that it is necessarily true. If you put two apples with three apples you will get five apples—even though you cannot count. It's another way of "explaining" things.

D : Oh.

D: But, then, why does the dream leave out the "not"?

F: I think really for a rather similar reason. Dreams are mostly made of images and feelings, and if you are going to communicate in images and feelings and such, you again are governed by the fact that there is no image for "not."

D: But you could dream of a "Stop" sign with a line through it, which would mean "No Stopping."

F: Yes. But that's halfway toward language. And the deleting line isn't the word "not." It's the word "don't." "Don't" can be conveyed in action language—if the other person makes a move to mention what you want to forbid. You can even dream in words, and the word "not" might be among them. But I doubt if you can dream a "not" which is about the dream. I mean a "not" which means "This dream is not to be taken literally." Sometimes, in very light sleep, one knows that one is dreaming.

D: But, Daddy, you still haven't answered the question about how dreams are put together.

F: I think really I have answered it. But let me try again. A dream is a metaphor or a tangle of metaphors. Do you know what a metaphor is?

- D: Yes. If I say you are like a pig that is a simile. But if I say you are a pig, that is a metaphor.
- F: Approximately, yes. When a metaphor is labeled as a metaphor it becomes a simile.
- D: And it's that labeling that a dream leaves out.
- F: That's right. A metaphor compares things without spelling out the comparison. It takes what is true of one group of things and applies it to another. When we say a nation "decays," we are using a metaphor, suggesting that some changes in a nation are like changes which bacteria produce in fruit. But we don't stop to mention the fruit or the bacteria.
- D: And a dream is like that?
- F: No. It's the other way around. The dream would mention the fruit and possibly the bacteria but would not mention the nation. The dream elaborates on the relationship but does not identify the things that are related.
- D: Daddy, could you make a dream for me?
- F: You mean, on this recipe? No. Let's take the piece of verse which I read you just now and turn it into a dream. It's almost dream material the way it stands. For most of it, you have only to substitute images for the words. And the words are vivid enough. But the whole string of metaphors or images is pegged down, which would not be so in a dream.
- D: What do you mean by "pegged down"?
- F: I mean by the first word: "Thought." That word the writer is using literally, and that one word tells you what all the rest is about.
- D: And in a dream?
- F: That word, too, would have been metaphoric. Then the whole poem would have been much more difficult.
- D: All right—change it then.
- F: What about "Barbara changed the infinite . . ." and so on.
- D: But why? Who is she?
- F: Well, she's barbarous, and she's female, and she is the mnemonic name of a syllogistic mood. I thought she would do rather well as a monstrous symbol for "Thought." I can see her now with a pair of calipers, pinching her own brain to change her universe.
- D: Stop it.

F: All right. But you see what I mean by saying that in dreams the metaphors are not pegged down.

D: Do animals peg down their metaphors?

F: No. They don't have to. You see, when a grown-up bird makes like a baby bird in approaching a member of the opposite sex, he's using a metaphor taken from the relationship between child and parent. But he doesn't have to peg down whose relationship he is talking about. It's obviously the relationship between himself and the other bird. They're both of them present.

D: But don't they ever use metaphors—act out metaphors—about something other than their own relationships?

F: I don't think so. No—not mammals. And I don't think birds do either. Bees—perhaps. And, of course, people.

D: There's one thing I don't understand.

F: Yes?

D: We've found a whole lot of things in common between dreams and animal behavior. They both deal in opposites, and they both have no tenses, and they both have no "not," and they both work by metaphor, and neither of them pegs the metaphors down. But what I don't understand is—why, when the animals do these things, it makes sense. I mean for them to work in opposites. And they don't have to peg down their metaphors—but I don't see why dreams should be like that, too.

F: Nor do I.

D: And there's another thing.

F: Yes?

D: You talked about genes and chromosomes carrying messages about development. Do they talk like animals and dreams? I mean in metaphors and with no "nots"? Or do they talk like us?

F: I don't know. But I am sure their message system contains no simple transform of Instinct Theory.