

Interpreting Images

I

Just as it's possible to understand novel sentences without having heard them before, it's possible to understand novel pictures without having seen them before. But these possibilities are often supposed to have totally different explanations (Scruton, 1981, 107; Schier, 1986, 43-84; Currie, 1995, 79-136): whereas the ability to understand novel sentences is supposed to be explained by tacit knowledge of a compositional theory of meaning for their language, the ability to understand novel pictures is supposed to be explained differently. In this paper I will argue against this disanalogy. Insofar as the ability to understand novel sentences is explained by tacit knowledge of a compositional theory, I will argue, so is the ability to understand novel pictures.

The thesis that the ability to understand novel pictures is explained by tacit knowledge of a compositional theory of representation for their symbol system is not intuitive, because it threatens to over-intellectualise understanding pictures. But the thesis that the possibility of understanding novel sentences is explained by tacit knowledge of a compositional theory of meaning for their language requires careful articulation too, because it threatens to over-intellectualise understanding language in the same way. Insofar as the careful articulation of a notion of tacit knowledge supports the thesis in the case of language, I will argue, it supports the thesis in the case of pictures as well, and so no disanalogy can be drawn between pictures and language in this respect.

The next section describes how tacit knowledge of a compositional theory of meaning explains the ability to understand some novel sentences. The third section argues that the ability to understand some novel depictions is explained by tacit knowledge of a compositional theory of representation for their symbol system. The fourth section agrees that the ability to understand some novel depictions is not explained by tacit knowledge of a compositional theory for their symbol system. But the fifth section argues that this is no disanalogy, because the ability to understand some novel sentences is not explained by tacit knowledge of a compositional theory for their language either. The sixth section concludes.

Four clarifications. First, since this paper is primarily concerned with the philosophy of pictures, I have attempted to say nothing original about the philosophy of language. Nevertheless, much of what I say about the philosophy of language is inevitably very controversial, so many readers will not be convinced by much of it. For those readers who are convinced that some, or even all, of what I say about philosophy of language is wrong, I would like to emphasise that the main point I would like to put forward in this essay is that there is a very close analogy between depiction and description with respect to compositionality. Even if my audience cannot agree with me what depiction and description are like, I hope they can at least agree with me that they are alike.

Second, questions about the compositionality of pictures are often considered together with questions about their conventionality (as in, for example, Schier, 1986, 66-67; Currie, 1995, 120-136; and Abell, 2005b; see too Bennett, 1971; Novitz, 1977, 21-44; 1998, Lopes, 1996, 131-135; and Blumson, 2008 for discussion of the conventionality of depiction). But whereas it's plausible that the conventionality of language, together with the possibility of understanding novel sentences, entails its compositionality, the converse entailment is not plausible. Even if it turns out that language is innate and so not conventional, for example, it doesn't follow that it is not compositional. Likewise, depiction is not conventional. But it doesn't follow that it's not compositional.

Third, different analyses disagree over which representations to classify as depictions. I will presuppose a version of the resemblance theory of depiction which, as well as the paradigm examples of figurative painting and drawing, also includes, for example, photography, sculpture, architectural drawings, maps and chess diagrams (See Abell, 2005a; 2009 and Blumson, 2007; 2009). Some of these examples – especially chess diagrams – are especially helpful illustrations, but I won't rely on them exclusively. In any case, however one decides to analyse depiction, there is an independent question about the extent to which compositionality extends beyond language. I'll argue below that that is much further than one might have expected.

Fourth, there is widespread disagreement over the ontology of pictures and sentences, about which I do not want to make any presuppositions. However, I will presuppose

that just as we may distinguish between a sentence token and its type, we may also distinguish between a picture token and its type. And I will presuppose that just as words belong to reoccurring types, parts of pictures also belong to reoccurring types, and thus may reoccur as parts of other pictures or even elsewhere in the same picture. The chess figurine which represents the black king, for example, reoccurs in the chess diagram of every legal position, and the chess figurine which represents a white pawn reoccurs eight times in the diagram of the opening position.

II

A theory of meaning for a language is a theory which entails, for each sentence in the language, a statement of the meaning of that sentence (Davidson, 1967, 22). Likewise, a theory of representation for a symbol system is a theory which entails, for each character in the symbol system, a statement about what that character represents. A theory of representation for the symbol system of Arabic numerals, for example, should entail statements such as that '1' represents one, that '2' represents two, ... and so on. And, a theory of representation for the symbol system of traffic lights is just a theory which entails that red represents stop, orange represents slow (or go faster) and green represents go.

A theory of representation is compositional if and only if the statement of what each character represents is derived from axioms which state the contribution of the parts of the character, and the significance of their arrangement. The statement that 'snow melts' in English means that snow melts, for example, might be derived in a compositional theory of English from an axiom stating that 'snow' refers to snow and an axiom stating that a referring term followed by 'melts' means the referent of that term melts. Likewise, in a compositional theory of representation for chess diagrams, the theorems which state what each diagram represents might be derived from axioms stating what the two colours, six figurines and sixty-four squares represent.

According to the simplest conception of tacit knowledge, tacitly knowing a theory is simply being disposed to judge in accordance with its theorems. Tacitly knowing the theory of representation for traffic lights, for example, is being disposed to judge that

red represents stop, that orange represents slow and that green represents go. Tacitly knowing a theory of meaning for English, according to this conception, is just being disposed to judge that 'snow is white' in English means that snow is white, that 'grass is green' in English means that grass is green, ... and so on for each English sentence. And tacitly knowing a theory of representation for chess diagrams is being disposed to judge, for each diagram, which position it represents.

If this conception is correct, then if there is a compositional theory of representation for a symbol system, competent interpreters tacitly know that theory, since they are disposed to judge in accordance with its theorems. If there is a compositional theory of representation for pictures, for example, then it would follow trivially that I tacitly know that theory, simply because I'm disposed to judge that my portrait represents me, that the Mona Lisa represents Lisa, ... and so on for each picture. So according to this conception, if there is a compositional theory of representation for pictures, then everybody who has the ability to understand pictures tacitly knows that compositional theory.

But because it doesn't distinguish between tacit knowledge of compositional and non-compositional theories, the simplest conception is inadequate. Take, for example, a language with just one hundred sentences, composed of ten names and ten predicates. A compositional theory of meaning for the language might have a separate axiom for each name and predicate, and so twenty axioms in total, whereas a non-compositional theory of meaning for the language might have separate axioms for each sentence, and so one hundred axioms in total. Intuitively, the possibility of understanding novel sentences in the language could be explained by tacit knowledge of the compositional theory, but not tacit knowledge of the non-compositional theory (Evans, 1981, 327).

But since the non-compositional theory of meaning with one hundred axioms and the compositional theory of meaning with just twenty axioms have all the same theorems, being disposed to judge in accordance with the theorems of the compositional theory is being disposed to judge in accordance with the theorems of the non-compositional theory. So the simplest conception of tacit knowledge can't distinguish between tacit knowledge of the compositional theory and tacit knowledge of the non-compositional

theory (Evans, 1981, 327). Likewise, the simplest conception of tacit knowledge can't distinguish tacitly knowing a compositional theory of representation for pictures from simply having the ability to understand pictures.

So tacitly knowing a theory of representation for a symbol system is not merely being disposed to judge in accordance with its theorems. Instead, tacitly knowing a theory of representation for a symbol system requires possession of a distinct disposition to judge what its characters represent corresponding to each axiom of the theory (Evans, 1981, 328). Tacitly knowing the hundred axiom theory of meaning for a one hundred sentence language, for example, requires possessing a distinct disposition, for each of the hundred sentences, to judge what that sentence means. But tacitly knowing the twenty axiom theory merely requires possessing a distinct disposition, for each name and predicate, to judge what the sentences composed of that name or predicate mean.

If, for example, the language contained the expressions 'John', 'Harry', 'is happy', and 'is sad', then the hundred axiom theory would have four distinct axioms which state what sentences composed of those expressions mean. They would state that 'John is happy' means John is happy, that 'John is sad' means John is sad, that 'Harry is happy' means Harry is happy and that 'Harry is sad' means Harry is sad. So tacitly knowing the one hundred axiom theory requires possessing four distinct dispositions corresponding to each of these four axioms: a disposition to judge that 'John is happy' means John is happy, that 'John is sad' means John is sad, that 'Harry is happy' means Harry is happy, and that 'Harry is sad' means Harry is sad.

In contrast, someone who tacitly knows the twenty axiom theory would have four interlocking dispositions, corresponding to the four axioms for the expressions 'John', 'Harry', 'is happy' and 'is sad'. The axiom that 'John' refers to John, for example, would correspond to the disposition to judge, when it's tacitly known that a predicate following a name means the referent of that name has a certain property, that 'John' followed by that predicate means that John has that property. And the axiom that 'is sad' following a name means that the referent of that name has the property of being sad, for example, would correspond to a disposition to judge, when it's tacitly known what a name refers to, that 'is sad' following that name means that its referent is sad.

Two clarifications. First, to properly distinguish between tacit knowledge of theories with different axioms, the dispositions involved must be “full-blooded” (Evans, 1981, 329), since in a weak-blooded sense the dispositions corresponding to the hundred axiom theory also confer the dispositions corresponding to the twenty axiom theory. If one tacitly knows the hundred axiom theory, for example, one is disposed to judge that ‘John’ prefixed to a predicate means that John has the property represented by that predicate, in the sense that one is disposed to judge that ‘John is sad’ means that John is sad, ‘John is happy’ means that John is happy, ... and so on. So in a weak-blooded sense, tacit knowledge of the one theory is still tacit knowledge of the other.

So the possession of a distinct disposition corresponding to each axiom cannot merely require a tendency to judge in accordance with those axioms, but requires that a single state figures in the causal explanation of each of the judgements corresponding to the theorems those axioms entail (Evans, 1981, 30). To possess a full-blooded disposition to judge, for example, that ‘John’ prefixed to a predicate means that John has the property represented by that predicate, requires a single state to figure in the causal explanation of the judgements that ‘John is sad’ means that John is sad, that ‘John is happy’ means that John is happy, ... and so on for the other eight sentences which prefix ‘John’ to a predicate.

Second, it might be worried that vicious circularity is involved in the inter-definition of the dispositions corresponding to the axioms for names and predicates (Wright, 1986, 233). The disposition corresponding to the axiom that ‘John’ refers to John, for example, is defined partly in terms of tacit knowledge of the axioms which state that predicates followed by names mean that the referent of the names have a certain property. And the disposition corresponding to the axiom that ‘sad’ following a name means that the referent of the name has the property of being sad, for example, is defined partly in terms of tacit knowledge of the axioms which state what names refer to. In case this circularity is vicious, it’s desirable to circumvent it.

This suggests a theory of representation is tacitly known if and only if whenever the axioms of a theory which entail what $s_1...s_n$ represent also entail what s represents, the

states figuring in the causal explanation of judgements of what $s_1...s_n$ represent jointly suffice to causally explain a judgement of what s represents (Davies, 1987, 446-447). If the twenty axiom theory is tacitly known, for example, then because the axioms entailing what ‘Harry is sad’ and ‘John is happy’ mean entail what ‘Harry is happy’ and ‘John is sad’ mean, the states which causally explain judgements of what ‘Harry is sad’ and ‘John is happy’ mean also suffice to causally explain judgements of what ‘Harry is happy’ and ‘John is sad’ mean.

Tacit knowledge of the twenty axiom theory explains the ability to understand some novel sentences, since if one judges, for example, that ‘Harry is sad’ means that Harry is sad and that ‘John is happy’ means that John is happy by tacitly knowing the twenty axiom theory, then the states which causally explain these judgements will also suffice to explain one’s judgement that ‘Harry is happy’ means that Harry is happy, even if ‘Harry is happy’ has not previously appeared. But tacit knowledge of the hundred axiom theory doesn’t explain the ability to understand novel sentences, since then the judgement of what each sentence means is causally explained by a separate state, which never suffices to causally explain any other judgement.

In general, tacit knowledge of a compositional theory of meaning explains the ability to understand some novel sentences, since if a compositional theory of meaning for the language of those sentences is tacitly known, then states which causally explain judgements about what some sentences of the language mean will suffice to causally explain judgements about what some novel sentences of the language composed of the same parts mean. If English speakers tacitly know a compositional theory of meaning for English, for example, then the states causally explaining their judgement that ‘John loves Mary’ means ‘John loves Mary’ might also explain their judgement of what the novel sentence ‘Mary loves John’ means.

III

If this analysis of tacit knowledge is correct, then whether interpreters tacitly know the compositional theory of representation for a depictive symbol system is not trivial, since it might not be the case that the axioms of the compositional theory which entail

what some of the pictures represent entail what another picture represents whenever the states which causally explain judgements of what the former represent suffice to explain judgements of what the latter represent. Nevertheless, this section argues that the ability to understand some novel depictions is explained by tacit knowledge of a compositional theory of representation for their symbol system, even according to the more demanding analysis of tacit knowledge just outlined.

It's a non-trivial question, for example, whether the ability to understand novel chess diagrams is explained by tacit knowledge of a compositional theory of representation for their symbol system, because this depends on whether or not the states responsible for causally explaining what chess diagrams represent suffice to causally explain what other chess diagrams composed of the same parts represent. If judgements about what's represented by diagrams containing the figurine representing the knight, for example, don't all have a common causal explanation, then a theory of representation with an axiom stating what that figurine represents is not tacitly known by interpreters of the diagrams.

But tacit knowledge of the compositional theory for chess diagrams does explain the ability to understand novel chess diagrams. Because the axioms of the compositional theory which entail what some chess diagrams represent entail what chess diagrams composed of the same parts represent, and because someone able to understand some chess diagrams has the ability to understand what other diagrams composed of the same parts represent, whenever the axioms of the compositional theory which entail what some chess diagrams represent entail what other chess diagrams represent, the states figuring in the causal explanation of judgements of what the former represent suffice to causally explain judgements of what the latter represent.

If one can understand the diagram of an endgame position with a pawn and two kings, for example, then one is able to understand the diagram of every endgame position with a pawn and two kings. So the states which figure in the causal explanation of judgements of what the diagram of the endgame position with a pawn and two kings represents should suffice to causally explain judgements of what the diagram of every endgame position with a pawn and two kings represent. And so since the axioms of

the compositional theory which entail what the diagram of the endgame position with a pawn and two kings represents entail what the diagram of every endgame position with a pawn and two kings represents, one tacitly knows the compositional theory.

Similarly, the ability to understand some novel maps is explained by tacit knowledge of a compositional theory of representation for their symbol system. If one is able to understand a page of one's street directory, for example, then one's able to understand any other page of one's street directory on which only the same symbols occur. So the states figuring in the causal explanation of judgements of what that page represents should suffice to causally explain judgements of what the other pages represent. And so since the axioms of a compositional theory which entail what the page represents should also entail what the other pages composed of the same parts represents, one tacitly knows that compositional theory.

Maps and chess diagrams are especially clear illustrations of this phenomenon, but they are controversial examples of depiction. But many other examples, while less simple, are paradigmatic examples of depiction. Imagine, for example, two successive panels of a graphic novel, depicting the same scene first illuminated, but then in darkness. In the first panel, one sees the villain clearly. But in the second, one sees only the whites of his eyes and his maniacal grin, which are depicted by the same white parts as in the first panel. If one can understand the first panel, one can understand the second panel, because one already understands its parts.

Since if one can understand the first panel, one can understand the second panel, the states which suffice to causally explain one's judgement of what is represented by the first panel also suffice to causally explain one's judgement of what is represented by the second panel. And so since the axioms of a compositional theory of representation which entail what the first panel represents also entail, by stating what is contributed by the white parts, what the second panel represents, the causal explanation of one's judgements of what the panels represent corresponds to the derivational structure of the compositional theory, and the theory is tacitly known. Any kind of picture placed in sequence – such as tapestries, friezes or films – could furnish similar examples.

In general, whether compositional theories of meaning for depictive symbol systems are tacitly known is not trivial, since it depends on whether or not the causal structure of interpretive judgements corresponds to the derivational structure of a theory. But in many cases, if one is able to understand a picture, one is able to understand what other pictures composed of the same parts represent. In these cases, the states which suffice to causally explain one's judgement of what the picture represents should also suffice to causally explain one's judgements of what the others represent. And since axioms of a compositional theory entailing what that picture represents entail what pictures composed of the same parts represent, the compositional theory is tacitly known.

It might be objected that the correspondence between the derivational structure of the compositional theory of representation for chess diagrams and the causal structure of interpretive judgements about chess diagrams does not establish that the theory is tacitly known, since the correspondence may simply be a coincidence or the result of an unusual psychological structure. It's often suggested, for example, that the ability to understand novel pictures is explained by the ability to recognise its subject face to face – one can understand a novel picture of a horse, for example, because one can recognise a horse (Schier, 1986, 43-55). That these abilities mirror the structure of a compositional theory may just be an odd coincidence.

If, for example, someone has one hundred brain compartments in which an explicit representation of each axiom of the hundred axiom theory of meaning for the hundred sentence language is stored, then intuitively he or she tacitly knows the hundred, not the twenty, axiom theory. But suppose that the hundred compartments are arranged by coincidence in ten columns and ten rows, with all the axioms stating the meaning of sentences composed of the same name in the same row, and all the axioms stating the meaning of sentences composed of the same predicate in the same column, and that nutrients flow to the compartments through the rows and columns (Davies, 1987, 451). Then intuitively, he or she still only knows the hundred axiom theory.

But if nutrient flow through a row is closed, then the ability to understand sentences composed of one of the names will be compromised. If nutrient flow through a column is closed, then the ability to understand sentences composed of one of the predicates

will be compromised. So the states figuring in the causal explanation of judgements of what sentences composed of some of the names and predicates mean jointly suffice to causally explain judgements of what other sentences composed of the same names and predicates mean and it follows from the analysis above – contrary to intuition – that the person tacitly knows the twenty axiom theory.

The states figuring in the causal explanation of the judgements that, for example, ‘Harry is sad’ means Harry is sad and ‘John is happy’ means John is happy include nutrient flow’s being open in the row which stores sentences containing ‘Harry’ and nutrient flow’s being open in the column storing sentences containing ‘is happy’. And these states suffice to causally explain the judgement that ‘Harry is happy’ means that Harry is happy. This corresponds to the derivational structure of the theory, since the axioms entailing that ‘Harry is sad’ means Harry is sad and ‘John is happy’ means John is happy suffice to entail that ‘Harry is happy’ means Harry is happy.

To avoid merely accidental coincidence between the derivational structure of a theory and the causal structure of interpretive judgements, the analysis of tacit knowledge should be revised as follows: a theory of representation is tacitly known if and only if whenever the axioms of a theory which entail what $s_1...s_n$ represent also entail what s represents, the states figuring in the causal explanation of judgements of what $s_1...s_n$ represent jointly suffice to causally explain the judgement of what s represents and also, together with revision to judgements of what s represents, explain corresponding revision in judgements about what $s_1, ..., s_n$ represent (Davies, 1987, 457).

Explicit representation of each axiom of the hundred axiom theory in one hundred brain compartments arranged by coincidence in ten columns and rows, for example, does not constitute tacit knowledge of the twenty axiom theory, because although this causal structure corresponds to the derivational structure of the twenty axiom theory, revisions to judgements about what some of the sentences represent don’t explain corresponding revisions in what the other sentences represent. Since the information about what each sentence means is stored in a separate compartment, revision to that information doesn’t involve revision to any other information.

But the correspondence between the derivational structure of the compositional theory for chess diagrams and the causal structure of interpretive judgements about them is not a coincidence in this sense, because revision to judgements of what some of the diagrams represent does explain corresponding revision in judgements about what some others represent. If one revises one's judgement about which figurine represents the king in one diagram, for example, then one will revise one's judgement about which figurine represents the king in all diagrams. So the compositional and not the listiform theory of representation for chess diagrams is still tacitly known.

IV

So the ability to understand some novel pictures – such as novel chess diagrams – is explained by tacit knowledge of a compositional theory of representation for their symbol system, since the structure of causal explanations of the ability to understand some novel pictures mirrors the derivational structure of the compositional theory for their symbol system. Nevertheless, this section agrees the ability to understand some novel pictures isn't explained by tacit knowledge of a compositional theory, because the structure of causal explanations of the ability to understand some novel pictures doesn't mirror the derivational structure of a compositional theory for their symbol system.

The ability to understand some novel pictures can't be explained by tacit knowledge of a compositional theory because their parts are also novel. Even though its parts were novel, the following depiction of a hat, for example, could be understood on its first appearance (Saint-Exupéry, 1943, 1):



But this is not explained by tacit knowledge of a compositional theory, because the disposition corresponding to an axiom which states, for example, that its lower part represents a brim could not have been acquired from a previous appearance of its lower part, since its lower part had never previously appeared.

The problem is not that the interpreter doesn't tacitly know a compositional theory of representation for the picture. The interpreter does know a compositional theory, since just as an axiom which entails that the top part represents a crown and an axiom which entails that the bottom part represents the brim would also entail that the whole picture represents a hat, the states which suffice to causally explain the judgement that the top part represents a crown and the judgement that the bottom part represents the brim would also suffice to causally explain the judgement that the whole represents the hat and also, together with revision to judgements of what the whole represents, explain corresponding revisions in judgements about what the two parts represent.

But the interpreter's tacit knowledge of a compositional theory of representation for the symbol system of the picture doesn't explain the interpreter's ability to understand it on its first appearance, since the interpreter's ability to judge that the top represents a crown and that the bottom part represents a brim also requires explanation, because the bottom and top part of the picture are also appearing for the first time. So rather than the interpreter's antecedent tacit knowledge of what the top and bottom part represent explaining the interpreter's judgement of what the whole represents, tacit knowledge of what the parts represent is acquired simultaneously. What the parts represent was tacitly known, but not before seeing the picture.

Moreover, the possibility of understanding some novel pictures whose parts are not novel can't be explained by tacit knowledge of a compositional theory, because their parts don't represent what they did on previous appearances. The following depiction of a boa constrictor swallowing an elephant, for example, could be understood on its first appearance (Saint-Exupéry, 1943, 1):



But tacit knowledge of a compositional theory could not explain this, because a disposition corresponding to an axiom stating that the outer part represents a boa constrictor could not have been acquired from its appearance representing a hat.

The problem is not that the interpreter doesn't tacitly know a compositional theory of representation for the picture. The interpreter does know a compositional theory, since just as an axiom which entails that the outer part represents a boa constrictor and an axiom which entails that the inner part represents an elephant might entail that the whole represents a boa constrictor swallowing an elephant, the states which suffice to causally explain the judgement that the outer part represents a boa constrictor and the judgement that the inner part represents an elephant would also suffice to causally explain the judgement that the whole picture represents a boa constrictor swallowing an elephant.

But the interpreter's tacit knowledge of a compositional theory of representation for the symbol system of the picture doesn't explain the interpreter's ability to understand it on its first appearance, since the interpreter's ability to judge that the outer part represents a boa constrictor also requires explanation, since the outer part represented a hat on its previous appearance, and so the interpreter should have been expected to judge that the outer part represents a hat. So rather than the interpreter's antecedent tacit knowledge of what the outer part represents explaining his or her judgement of what the whole represents, tacit knowledge of what the whole picture, outer part and inner part represent was acquired simultaneously. What the parts represent was tacitly known, but not in advance of seeing the picture.

It might be objected that just as the fact that the referents of indexicals such as 'I', 'now' and 'here' vary from context to context doesn't show that the possibility of understanding sentences composed of them is not explained by antecedent tacit knowledge of a compositional theory of meaning (Kaplan, 1989), the fact that what is represented by some parts of pictures varies from context to context doesn't show that the ability to understand those pictures isn't explained by antecedent tacit knowledge of a compositional theory of representation. Perhaps the variation in what picture parts represent may be accommodated in just the same way as the variation in what indexicals refer to (Abell (2005b, 193) has an excellent discussion of this issue).

To accommodate context-dependence, a theory of meaning for a language should

entail what each sentence in the language means not simpliciter, but relative to a time, place and individual (Davidson, 1967, 34). A theory of meaning for English, for example, shouldn't entail simply that 'I am tired' in English means that I am tired, since 'I am tired' spoken by somebody else doesn't mean that I am tired. Instead, the theory should entail that 'I am tired' spoken by a person at a time and place means that that person is tired at that time and place. Similarly, the theory should entail that 'I am here now' spoken by a person at a place and time means that that person is at that place at that time.

To entail statements of what each sentence in a language means relative to a time, place and individual, the axioms of the theory of meaning for a language should be similarly modified. A theory of meaning for English should not, for example, have an axiom stating that 'I' refers to me, since 'I' spoken by someone else does not refer to me. Instead, the theory should have an axiom stating that 'I' spoken by a person at a time and place refers to that person. Similarly, the theory should have an axiom stating that 'now' spoken by a person at a time and place refers to that time and that 'here' spoken by a person at a time and place refers to that place. In combination with an axiom for 'am', these axioms entail the appropriate theorem for 'I am here now'.

So although the referents of indexicals vary from context to context, the possibility of understanding novel sentences containing them is still explained by tacit knowledge of a theory of meaning which entails what each sentence means relative to a context. English interpreters, for example, may tacitly know a theory of meaning with the axiom stating that 'I' spoken by a person at a time and place refers to that person, because they are disposed to judge, when they tacitly know that a predicate represents a certain property, that 'I' prefixed to that predicate by a person at a time and place means that that person has that property. They are disposed to judge, for example, that 'I am happy' spoken by Harry means that Harry is happy.

Likewise, it might be argued that the possibility of understanding novel depictions is explained by tacit knowledge of a compositional theory of representation which entails statements of what pictures represent relative to people, times and places, even when their parts don't represent what they did on previous occasions. Tacitly knowing

a theory with an axiom stating in which contexts the irregular shape above represents a hat, in which contexts it represents a boa constrictor and in which contexts it represents something else, for example, might explain the ability to understand the picture of the boa constrictor swallowing the elephant on its first appearance, as long as tacit knowledge of the axiom was antecedently acquired.

But even if there are compositional theories of representation with axioms stating what is represented by the parts of pictures relative to each context in which they occur, it's implausible that interpreters of pictures tacitly know these theories, because it's implausible they have distinct dispositions corresponding to these axioms. It's not plausible, for example, that anyone has a distinct disposition to judge that the shape above, when it appears alone, represents a hat but, when they tacitly know what is represented by a shape that it surrounds, that it represents a boa constrictor swallowing the thing represented by the shape that it surrounds – it's more plausible that there are two distinct dispositions corresponding to the two judgements.

Moreover, even if a single state corresponding to tacit knowledge of an axiom stating the contribution of the irregular shape figured in the causal explanation of both the judgement of what the picture of the hat represents and the judgement of what the picture of the boa constrictor swallowing an elephant represents, it would not follow from the analysis above that this state constitutes tacit knowledge of such an axiom, since that state together with revision to judgements about what the picture of the hat represents would not explain corresponding revisions to judgements about what the picture of the boa constrictor swallowing the elephant represents. If a single state did figure in the causal explanation of both, that would be a mere coincidence.

So the ability to understand some novel pictures is not explained by antecedent tacit knowledge of a compositional theory of representation for their symbol system. If the ability to understand all novel sentences were explained by antecedent tacit knowledge of a compositional theory of meaning for their language, this would be an important disanalogy between depiction and description. However, the next section argues that the ability to understand some novel sentences isn't explained by pre-existing tacit knowledge of a compositional theory of meaning for their language

either. If this is right, the purported disanalogy between depiction and description in this respect is merely an illusion.

V

So the ability to understand some novel pictures – those with novel parts and parts which don't represent what they did on previous occasions – is not explained by tacit knowledge of a theory of representation for their symbol system, since dispositions corresponding to the axioms of such a theory could not have been acquired from previous appearances of the parts. Nevertheless, this section argues that this is no disanalogy between depiction and description, because the ability to understand some novel sentences – those with novel parts and parts which don't mean what they did previously – isn't explained by tacit knowledge of a compositional theory either, for the same reasons that the ability to understand some novel pictures isn't.

Even though many of its words, such as 'mimsy', 'vorpal', 'chortled', 'frumious' and 'beamish' were novel, most of *Jabberwocky* (Carroll, 1871), for example, could be understood the first time it was read, but tacit knowledge of a compositional theory of meaning could not explain this possibility. The disposition corresponding to an axiom stating that 'chortled' suffixed to a referring term means that the referent of that term laughed, for example, could not have been acquired from a previous appearance of the word 'chortled', since it had never previously appeared. But it was still possible to understand 'he chortled in his joy' (Davidson, 1986, 90). Likewise, it was possible to understand 'O frabjous day', even though 'frabjous' had not appeared before.

The problem is not that the interpreter doesn't tacitly know a compositional theory which entails what 'he chortled' means. The interpreter does know a compositional theory which entails what 'he chortled' means, because just as the axioms of a compositional theory which entail what 'she chortled' and 'he is happy' mean, for example, suffice to entail what 'he chortled' means, the states which causally explain the judgement of what 'she chortled' and the judgement of what 'he is happy' means suffice to causally explain the judgement of what 'he chortled' means and, together

with revisions to judgements of what ‘he chortled’ means, suffice to causally explain corresponding revision in judgements to what ‘she chortled’ and ‘he is happy’ mean.

But the interpreter’s tacit knowledge of a compositional theory which entails what ‘he chortled’ means doesn’t explain the interpreter’s ability to understand ‘he chortled’ on its first appearance, because the interpreter’s ability to judge what ‘she chortled’ means also requires explanation, since ‘she chortled’ might not have appeared previously either. So rather than the interpreter’s antecedent tacit knowledge of what ‘she chortled’ and ‘he is happy’ mean explaining the interpreter’s judgement of what ‘he chortled’ means, tacit knowledge of what ‘she chortled’ and ‘he chortled’ mean is acquired simultaneously. What the parts represent is tacitly known, but not in advance of hearing the sentence.

Because ‘chortled’ is a portmanteau word derived from ‘snorted’ and ‘chuckled’, it might be objected that the ability to understand what ‘he chortled’ means on its first appearance is explained by tacit knowledge of a compositional theory of meaning with axioms which entail what ‘he snorted’, ‘he chuckled’ and ‘he chortled’ mean by stating the contribution of ‘ch...l’, ‘...ort’ and ‘...ed’. But the states figuring in the causal explanation of judgements of what ‘he snorted’ and ‘he chuckled’ mean do not suffice to causally explain the judgement of what ‘he chortled’ means, since a causal explanation must also involve knowledge that ‘chortled’ is a portmanteau of ‘snorted’ and ‘chuckled’ (See Davies, 1981, 140-1 for discussion of a similar point).

It may also be objected that ‘he chortled in his joy’ and ‘O frabjous day’ did not mean anything on their first appearance, and so there is no need to explain the possibility of understanding them. But although ‘he chortled in his joy’ did not mean anything prior to its occurrence as part of *Jabberwocky* it has meant something since that time, and it seems plausible that this is also what it meant on this first occasion. In general, many words must have been used for a first time, with the same meanings with which they were used at subsequent times. On many of these occasions interpreters would have understood the use of the word correctly. But their ability to do so need not have been explained by antecedent tacit knowledge of a compositional theory of meaning.

Just as the possibility of understanding novel sentences whose parts are also novel can not be explained by pre-existing tacit knowledge of a compositional theory, nor can the possibility of understanding some novel sentences the parts of which aren't novel, but don't mean what they did on previous appearances. Dispositions acquired from previous appearances of the parts of these sentences would correspond to axioms that state what the parts meant previously, instead of to axioms that state what they mean currently. Since manifestations of these dispositions would result in false judgements about the meaning of novel sentences, they wouldn't explain the ability to understand those novel sentences.

The ability to understand a novel utterance of 'the ATM swallowed my card', for example, is not explained by tacit knowledge of a compositional theory of meaning, since the disposition acquired from previous appearances of 'swallowed' would correspond to an axiom stating that 'swallowed' between two referring terms means that the referent of the first term swallowed the referent of the second term, and result in the judgement that 'the ATM swallowed my card' means the automatic transaction machine literally swallowed my card, rather than the more appropriate judgement that 'the ATM swallowed my card' means simply that the automatic transaction machine retained my card (Recanati, 2004, 26).

Similarly, it's possible to understand the intended meaning of malapropisms such as 'we need a few laughs to break up the monogamy', 'lead the way and we'll precede', or 'we're all cremated equal', even though 'monogamy', 'precede' and 'cremated' are not used with their usual meanings in these sentences (Davidson, 1986, 90). But these possibilities can't be explained by antecedent tacit knowledge of a compositional theory of meaning entailing what the malapropisms are being used to mean, because tacit knowledge of an antecedently known theory would lead to the judgement, for example, that 'we need a few laughs to break up the monogamy' literally means that we need a few laughs to break up the monogamy.

The problem is not that the interpreter doesn't tacitly know a compositional theory which entails what these sentences mean. The interpreter does know a compositional theory which entails what the sentences mean, since just as axioms of a compositional

theory which entail what ‘lead the way and we’ll precede’ means, for example, suffice to entail what ‘precede and we’ll lead the way’ means, the states which causally explain the judgement of what ‘lead the way and we’ll precede’ means suffice to causally explain the judgement of what ‘precede and we’ll lead the way’ means and, together with revisions to judgements of what the former means, suffice to causally explain corresponding revision in judgements to what the latter means.

But the interpreter’s tacit knowledge of a compositional theory which entails what the sentences mean does not explain the interpreter’s ability to understand them on their first appearance, because the interpreter’s ability to judge what the sentences mean also requires explanation, since their parts are not appearing with the meanings they had previously. So rather than the interpreter’s antecedent tacit knowledge of what ‘we’ll precede’ means on this occasion explaining the interpreter’s judgement of what ‘lead the way and we’ll precede’ means on this occasion, tacit knowledge of what both ‘we’ll precede’ and ‘lead the way and we’ll precede’ mean on this occasion is acquired simultaneously.

Finally, the ability to judge whether a novel utterance of ‘my horse is winning’ means that the horse I bet on is winning, for example, may not be explained by antecedent tacit knowledge of a compositional theory of meaning, since on previous appearances of ‘my horse’ it may have referred to the horse I own, or ride, or like, or eat ... and so on, but not to the horse I bet on. In this case, the axioms which entail ‘my horse is neglected’ means that the horse I own is neglected, for example, would not entail that ‘my horse is winning’ means that the horse I bet on is winning, but would entail that ‘my horse is winning’ means that the horse I own is winning. So tacit knowledge of a compositional theory doesn’t explain the ability to understand some novel ambiguous sentences.

Two objections. First, it might be that the examples of metaphor and malapropism do not show that tacit knowledge of a compositional theory of meaning doesn’t explain the ability to understand some sentences, but only that it doesn’t explain the ability to understand what speakers mean by using those sentences. In the case of metaphor, for example, tacitly knowing a theory of meaning can explain the ability to form the

judgement that the sentence ‘the ATM swallowed my card’ means that the ATM literally swallowed my card, which in turn may enable an interpreter to infer that what I meant by uttering ‘the ATM swallowed my card’ on a particular occasion is that the ATM retained my card (since, of course, ATMs cannot really swallow things).

In contrast, it might be argued that in the case of depiction there’s nothing analogous to sentence meaning, the ability to understand which could always be explained by tacit knowledge of a compositional theory of meaning. It’s not the case, for example, that the irregular shape above standardly represents a hat, that interpreters are able to judge on its second appearance that it standardly represents a hat, but that they are then able to infer from this that on this occasion its perpetrator is instead using it to represent a boa constrictor. In contrast, neither its representation of a hat nor of a boa constrictor is particularly standard (although Blumson (2007, 121) argues that there is no disanalogy between depiction and description even in this respect).

But it’s false even in the case of language that tacitly knowing a theory of meaning explains the ability to understand the sentence meaning of all novel sentences, since it’s sometimes possible to understand even the sentence meaning of a novel sentence without tacitly knowing a theory of meaning for its language. It may be possible to understand what the sentence ‘and you in Grecian tires are painted new’, for example, means by first inferring what Shakespeare meant by it, and then proceeding to figure out from this that the meaning of the sentence is that the addressee is painted new in Grecian clothes (Davidson, 1986, 92). So the points above apply to sentence meaning just as well as they do to speaker meaning.

Second, it may be objected that ambiguity does not show that the ability to understand some novel sentences is not explained by tacit knowledge of a compositional theory, since the ability to understand ambiguous sentences can be explained by tacit knowledge of compositional theories of meaning which explicitly distinguish between the senses of ambiguous expressions, and which is tacitly known. The fact that ‘bank’ is ambiguous between river bank or financial bank, for example, doesn’t show that the possibility of understanding novel sentences containing ‘bank’ is not explained in part by tacit knowledge of a compositional theory of meaning, because interpreters tacitly

know the two disambiguations of 'bank' in advance (Currie, 1995, 125).

To accommodate ambiguity, a theory of meaning for a language should possess a distinct theorem for each ambiguous expression (Larson & Segal, 1995, 46). A theory of meaning for English, for example, shouldn't entail simply that 'the bank is open' means that the bank is open, since this theory doesn't state unambiguously what 'the bank is open' means. Instead the theory of meaning for English should entail two theorems: one stating that 'the bank₁ is open' means that the river bank is open and one that the 'the bank₂ is open' means that the financial bank is open, where the two subscripts mark the two different senses of 'bank'. In general, a theory of meaning should entail a distinct theorem for each disambiguation of a sentence.

To entail distinct theorems for lexically ambiguous sentences, a theory of meaning for a language should include distinct axioms for their lexically ambiguous primitives. So the theory of meaning for English should not, for example, have a single axiom stating that 'the bank' refers to the bank, since this axiom doesn't unambiguously state the contribution of 'the bank' to sentences which contain it. Instead a theory of meaning for English should have two axioms, one stating that 'the bank₁' refers to the river bank and one stating that 'the bank₂' refers to the financial bank, where the two different senses of 'the bank' are again marked by the two subscripts ('the bank' isn't really a primitive or referring term, but this complication isn't important here).

It's plausible that the ability to understand many ambiguous sentences is explained by tacit knowledge of compositional theories of meaning of this kind. Corresponding to the distinct axioms stating that 'the bank₁' refers to the river bank and that 'the bank₂' refers to the financial bank are two distinct dispositions, one to judge that sentences containing 'the bank₁' are about the river bank and one to judge that sentences containing 'the bank₂' are about financial banks. Which disposition manifests itself in the interpretation of a particular utterance containing 'the bank' depends on further factors. But it's plausible that dispositions corresponding to these axioms are tacitly known, prior to hearing 'bank' in any novel sentence one understands.

But it's not plausible that the ability to understand every novel ambiguous sentence is

explained by tacit knowledge of a compositional theory of meaning of this kind. In order for a tacitly known theory to explain the ability to understand novel sentences composed of ‘my horse’, for example, it would require axioms (or rather theorems derived from axioms for ‘horse’ and the various senses of ‘my’) stating that ‘my₁ horse’ refers to the horse I own, ‘my₂ horse’ refers to the horse I ride, ‘my₃ horse’ refers to the horse I like, ‘my₄ horse’ refers to the horse I eat, ‘my₅ horse’ refers to the horse I bet on, ... and so on. Even if their number is finite, it’s implausible that anyone has in advance distinct dispositions corresponding to all these axioms (Currie’s (1995, 125) defence of the disanalogy involves denying this point).

So just as the possibility of understanding some novel pictures isn’t explained by tacit knowledge of a compositional theory of representation for their symbol system, the possibility of understanding some novel sentences isn’t explained by tacit knowledge of a compositional theory of meaning for their language. And just as the ability to understand some novel sentences is explained by tacit knowledge of a compositional theory of meaning for their language, the ability to understand some novel pictures is explained by tacit knowledge of a compositional theory of representation for their symbol system. Insofar as tacitly knowing a compositional theory explains the ability to understand novel sentences, it explains the ability to understand novel pictures too.

VI

I have argued that insofar as the ability to understand novel sentences is explained by tacit knowledge of a compositional theory for their language, the ability to understand novel pictures is likewise explained by tacit knowledge of a compositional theory of representation for their symbol system. I did this by arguing that just as the possibility of understanding some, but not all, novel sentences is explained by tacit knowledge of a compositional theory of meaning for their language, the possibility of understanding some, but not all, novel pictures is explained by tacit knowledge of a compositional theory of representation for their symbol systems. This exact parallel between the two theses supports an extremely strong analogy between depiction and description.

Inevitably, much of what I have said about the philosophy of language in this paper is

extremely controversial, and many readers will want to disagree with it. Whereas, for example, I said above that the various different senses of ‘my horse is winning’ stem from an ambiguity in the word ‘my’, many philosophers of language may argue that the various different sense of ‘my horse is winning’ stem from contextual dependence in the meaning of ‘my’. The reference of ‘my horse’ in a particular context, according to this view, depends not only on who is the speaker in that context, but also on the relevant sense of possession which is at issue in the context – perhaps legal ownership in some contexts, but mere familiarity in others.

Other philosophers of language may wish to argue that ‘my horse’ is unambiguous on the grounds that it refers to the horse the speaker possesses in some unspecific sense. The sentence meaning of ‘my horse is winning’, according to this view, is simply that a horse the speaker possesses in some unspecific sense is winning. Utterances of ‘my horse is winning’ on particular occasions, of course, will tend to convey that a horse the speaker possesses in some more specific sense – perhaps legal ownership on some occasions, and mere familiarity on others – is winning. But more specific implications like these may be merely a matter of speaker meaning, not sentence meaning. If this is the case, there is no reason to conclude that ‘my horse’ is ambiguous.

But insofar as points of this kind undermine the thesis that the ability to understand some novel sentences isn’t explained by tacit knowledge of a compositional theory of meaning for their language, analogous points undermine the thesis that the ability to understand some novel pictures isn’t explained by tacit knowledge of a compositional theory of representation for their symbol system. Just as admitting ambiguity in some sentences can be avoided by treating them as context-dependent, admitting ambiguity in some pictures can be avoided by treating them as context-dependent too. How best to treat any particular case is bound to be controversial. But I hope to have shown that the same kinds of consideration are relevant for both pictures and language.

Likewise, just as admitting ambiguity in some sentences might be avoided by arguing that they have an extremely thin sentence meaning, from which their thicker speaker meaning may be inferred, admitting ambiguity in some pictures can be avoided by arguing that they have an analogous bare-bones content, which may be fleshed-out in

an analogous way (see Kulvicki (2006, 159-169) for an approach of this kind). Just as one might argue that the sentence meaning of ‘my horse is winning’, for example, is simply that the horse I possess in some unspecific sense is winning, one may argue that the hat shape discussed above depicts neither a hat nor a boa constrictor, but just an unspecific thing of a particular shape and colour.

So although much of what I have said about the philosophy of language and pictures in this paper is inevitably very controversial, I would like to emphasise again that the main point I have put forward in this essay is that there is very close analogy between depiction and description with respect to compositionality. The considerations which support the thesis that the ability to understand some, but not all, novel sentences is explained by tacit knowledge of a compositional theory equally support the thesis that the possibility of understanding some, but not all, novel pictures is explained by tacit knowledge of a compositional theory. In this respect, depictions and descriptions are exactly alike, and the differences between them must be sought elsewhere.

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