PERMUTATIONS AND FOSTER PROBLEMS: TWO PUZZLES OR ONE?

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Abstract

How are *permutation arguments* for the inscrutability of reference to be formulated in the context of a Davidsonian truth-theoretic semantics? Davidson (1979) takes these arguments to establish that there are no grounds for favouring a reference scheme that assigns *London* to 'Londres', rather than one that assigns *Sydney* to that name. We shall see, however, that it is far from clear whether permutation arguments work when set out in the context of the kind of truth-theoretic semantics which Davidson favours. The principle required to make the argument work allows us to resurrect *Foster problems* against the Davidsonian position. The Foster problems and the permutation inscrutability problems stand or fall together: they are one puzzle, not two.

Two well-known objections to Davidson's approach to theories of meaning are *Permutation arguments* and *Foster problems*. I contend that these are two aspects of a single theoretical problem for the Davidsonian framework; if they can be answered at all, they will be answered in the same way.

Permutation arguments seek to establish that, by Davidson's lights, there is no reason to prefer a meaning-theory for French (for example) that assigns *London* as the referent of 'Londres', over one that assigns *Sydney* as the referent of that name. The accusation will be that this putative *inscrutability of reference* is unacceptable: so Davidson's theory of meaning must be modified or abandoned.

Foster problems can be presented in one of two ways, addressed to different aspects of Davidson's project. The ambition to have an extensional truth theory *serve as a theory of meaning* is at the very heart of Davidson's project, and one version of the Foster problem challenges this: noting that truth theories entail *uninterpretative* as well as *interpretative* T-sentences.[2] A second form of the Foster problem seeks to apply the same

[1] Thanks are due to all with whom I have discussed this work. I have benefited in particular from conversations from Crispin Wright and Richard Heck, and from the comments of an anonymous referee for *Ratio*.

[2] A T-sentence is a sentence of the form 'S is true iff p'. An *interpretative* T-sentence is one that where p intuitively 'gives the meaning' of S; otherwise the T-sentence is *uninterpretative*. Respective examples are: ''London is burning' is true iff London is burning'

formal phenomenon to argue that there can be no fact of the matter, by Davidsonian lights, as to whether 'is burning' means *is burning* or rather *is burning and everything is self-identical* or indeed *is burning and Fermat's last theorem is true*. Either version of the Foster problem, if sustained, would seem highly damaging for Davidson's overall project.

The two Foster problems are clearly two sides of the same coin, and I shall explain how a familiar response to the Foster problem – the restriction to canonical derivations – impacts on each. Furthermore, I argue that the permutation argument and the second version of the Foster problem are formally identical challenges. In particular, the restriction to canonical derivations vitiates the permutation argument as usually formulated. Nevertheless, the threat of inscrutability of meaning remains from *both* Foster- and permutation-style considerations. The cases stand and fall together, and the challenge to the Davidsonian who wishes to avoid inscrutability in each case is to provide an adequate answer to what I call the 'which data?' question.

This connection between permutation arguments and Foster problems allows us to see each of these familiar problems in a new light. It allows us to get clear on what it would take to solve either one of the problems; and suggests we look for a common strategy in tackling them. The conclusion also highlights a tension in Davidson's own position on the two cases: Davidson regarded the permutation argument as cogent, and regarded its conclusion as an insight into the inscrutable nature of reference; but he thought that the Foster argument should and could be resisted.[3] If I am right, Davidson's position is unsustainable.

1. Radical Interpretation

In developing radical interpretation, Davidson aimed to 'operationalize' intentional notions such as meaning, belief and desire.[4]

''London is burning' is true iff London is burning and Fermat's last theorem holds'.

[3] See Davidson (1979) and Davidson (1976) respectively. Davidson later changed his mind on how exactly the Foster problem should be resisted but he continued to regard it as resistible (cf. Davidson, 1982, introduction).

[4] Given constraints of space, the presentation here necessarily will be sketchy. More detailed accounts can be found in Davidson (1973, 1980) and Lepore and Ludwig (2005)

Starting from data about a particular 'thin' kind of attitude that one can plausibly delimit using non-intentional descriptions – that of 'holding true' a sentence[5] – Davidson aims ultimately to justify the ascription of a whole range of rich propositional attitudes to a subject, and simultaneously to fix the meanings of that subject's words.[6]

The basic idea is to use the conditions under which sentences a subject holds true a sentence, S, to start to list a set of target 'T-sentences' of the form: S is true if and only if p.[7] For example, if subjects invariably hold true the sentence 'la neige est blanc' only in the presence of white snow, we could provisionally put down the following T-sentence as a target:

'la neige est blanc' is true if and only if snow is white.

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[5] I leave aside the issue of whether taking 'sentential attitudes' such as *holding true* for granted is legitimate in this context. See Heal (1997) for discussion of this point.

[6] There are at least two kinds of tradition deriving from Davidson's work on truth and meaning. An example of the first is that advocated, for example, in Larson and Segal (1995). On their conception, the job of developing a Davidsonian semantic theory is to describe the workings of the module of the mind responsible for understanding language. Call this the *cognitive tradition*. Other closely related traditions see the Davidson-style semantic theory as articulating the implicit knowledge possessed by someone who understands a language (Evans (1981) nicely articulates some of the shared motivations for the cognitive tradition and its cousins).

The second kind of tradition focuses on Davidson's work on *radical interpretation* rather than his semantic theory proper. In one prominent instance, Davidson is seen as developing a distinctive answer to 'Brentano's question': how representation in general is possible. Davidson's answer is a rival, then, to the causal theories of Field (1972), Fodor (1987). This is for example, David Lewis's interest (Lewis, 1974, 1975) in Davidson's project. Call this the *metaphysics of meaning* tradition. My personal interest is in this tradition.

There are other traditions whose relation to the two mentioned is not clear. For example, there are some who see radical interpretation as an account of how meaning-facts are *grasped* by an agent, rather than (as in the metaphysics of meaning tradition) as an account of how meaning-facts are *constituted*: on such a view, radical interpretation may emerge as an idealized account of the epistemology of understanding another's utterances.

[7] Davidson's radical interpretation takes at least two distinct forms: the early version described in Davidson (1973, 1974) and the later version given in Davidson (1980). I shall here concentrate on the more familiar, early version.

For the sake of argument, suppose that we settle on a list of such T-sentences. Among other things, this allows us to transform the 'thin' data about sentences held-true into fully-fledged belief ascriptions. If, at a given time, the subject holds-true the sentence S, and the T-sentence 'S is true iff p' is on our list, then we shall say that the subject *believes that p*. So a subject's holding-true 'la neige est blanc' on a Tuesday afternoon, will lead us to say that the person at that time believes that snow is white.

The second part of the picture is to use the selected T-sentences as the basis of a semantic theory. Davidson prefers to see a semantic theory as taking the form of Tarskian truth theory; that is, comprising a suitable set of axioms assigning referents to singular terms, satisfaction conditions to predicates, and defining the truth conditions of whole sentences in terms of this lexical basis. In this framework, the truth conditions of sentences are meant to be expressed by T-sentences of exactly the form which we met above.

What Davidson asks us to do is to find a suitable set of axioms for a T-theory that will enable us to derive those T-sentences which we earlier extracted from our observations about the conditions under which a person holds-true various sentences. The sole 'empirical' constraint on a correct truth theory is that it matches this sentential data.

There are, of course, complications: complications in adapting Tarskian truth theories to features of natural languages;[8] complications in spelling out in detail the basic mechanisms of radical interpretation;[9] and complications in revising the list of target T-sentences in order to get a more plausible assignment of beliefs to a subject, or in order to enable a workable semantic theory to be constructed. Famous aspects of Davidson's philosophy, such as the 'principle of charity' emerge from this process as constraints on fixing upon and revising the set of target T-sentences. But this will not be relevant to us here.

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[8] See Larson and Segal (1995) for detailed development of the Davidsonian approach to natural language. Even the hackneyed example ' 'la neige est blanc' is true iff snow is white′ raises complex issues concerning the treatment of mass terms and generic sentences.

[9] Lewis (1975) gives a detailed characterization of what he takes Davidson's original programme to involve. Davidson (1980) describes in detail a slightly different approach.

2. Radical inscrutability

The other piece of machinery with which we will be concerned are *permutation* arguments for the inscrutability of reference.[10] In a story about what fixes meanings such as Davidson's, where the sole empirical constraint on semantic theory is that it match the truth conditions assigned to certain whole sentences, there is the theoretical possibility that those truth conditions will be derivable from more than one meaning-theory. If this is the case, we shall say that it is *inscrutable* which of the rival semantic theories, *ex hypothesi* empirically equivalent, is the true one.

The permutation argument seeks to show that such rival semantic theories are ubiquitous. Given a semantic theory θ and a permutation ϕ of the domain of quantification, we can construct a new theory θ′ which exactly matches θ as regards the assignment of truth conditions to sentences. Consequently, θ will match the sentential data if and only if θ′ does too.

To illustrate this, let us start with an example phrased in ordinary language. We shall focus on the sentence 'London is burning', will take our domain of quantification to be cities, and assume that there is a relation – x being the twin of y – such that every city has a unique twin (London's twin might be Paris, for example). Let θ be the theory which has as axioms ''London' refers to London' and ''is burning' is satisfied by x iff x is burning'. Let θ′ be the theory which has as axioms ' 'London' refers to London's twin' and ''is burning' is satisfied by x iff the thing of which x is the twin is burning'. Then we have:

- 'London is burning' is true according to θ iff London is burning.
- 'London is burning' is true according to θ′ iff the thing of which London's twin is the twin, is burning

[10] The argument is given and endorsed in Davidson (1979). He cites Wallace (1977) (originally presented in 1974) and Field (1975) as the main sources for his formulation of the argument. It has close parallels with arguments given by Quine in a slightly different context: Quine (1964), Quine (1969), ch.2. Davidson cites Jeffrey (1964) as the earliest use permutations in the theory of reference of which he is aware. Permutation arguments are commonly associated with Putnam (1981), who describes a permutation argument and generalizes it to intentional languages. Putnam cites Quine (1969) as the source for the argument that he generalizes.

- ‘London is burning’ is true according to θ iff ‘London is burning’ is true according to θ′

The last claim follows from the former two so long as we are allowed to appeal to the information that the twin of x’s twin is x – guaranteed by the fact that ‘the twin of’ expresses a permutation of the domain we chose.

Any bijection (one-to-one onto function) of the domain, ϕ, can play the role of ‘the twin of’. Writing the argument in abstract form makes clear what is going on. Let θ be the theory which has as axioms ‘ ‘London’ refers to London’ and ‘ ‘is burning’ is satisfied by x iff x is burning ‘. Let θ be the theory which has as axioms ‘ ‘London’ refers to ϕ(London)’ and ‘ ‘is burning’ is satisfied by x iff ϕ^{-1}(x) is burning ‘. Then we have:

- ‘London is burning’ is true according to θ iff London is burning.
- ‘London is burning’ is true according to θ′ iff ϕ^{-1}(ϕ(London)) is burning

From the above, together with piece of background theory that $\phi\phi^{-1}(x)=x$, we can see that the two theories will enable us to derive the same T-sentences for ‘London is burning’.

The above argument deals with the truth conditions of atomic statements. To develop the permutation argument in detail, we need to extend this to sentences of arbitrary complexity.[11] With this in place, the argument purports to show that any success a ‘standard’ theory θ has in assigning the right truth conditions for sentences, will be matched by an equally successful ‘deviant’ theory θ′, which embeds an arbitrarily chosen reference scheme. But assigning the right truth conditions for sentences is the *only* empirical constraint on semantic theory, for the Davidsonian. Thus, the notorious thesis of the inscrutability of reference: there is no fact of the matter about what object a singular term refers, nor to what objects a given predicate applies. Davidson (1979) endorses the permutation argument, and accepts the conclusion: he holds reference to be inscrutable.

[11] Hale and Wright (1997) sketch the details for a non-Tarskian semantic theory.

3. The problem

There are undoubtedly styles of semantic theory, and approaches to fixing meaning closely related to Davidson's, for which the permutation argument we have just sketched would be sufficient to establish that permuted theories assign the same truth conditions to sentences.[12] But Davidson's truth-theoretic semantic framework gives rise to special problems.

The T-sentence ''London is burning' is true iff London is burning' plays a certain role in the theory θ – it is provable in a certain characteristic way from the axioms of that theory. What plays the analogous role in θ' is *not* that very same T-sentence, but a closely related one: ''London is burning' is true iff $\phi^{-1}(\phi(\text{London}))$ is burning'. The two are equivalent modulo a small fragment of set theory, and the information that ϕ is a permutation. But they are distinct; and this raises some questions familiar from discussion of so-called 'Foster problems'.

4. The Foster Problem

There are several arguments that can be extracted from Foster (1976) against the Davidsonian project. Each derives from a single fundamental observation that Foster makes. Start with a truth theory θ, which we can suppose to contain an axiom:

' 'F' is satisfied by x iff x is F'

If p follows from underlying resources shared by all truth theories, then we can adjoin p as an extra conjunct to the clause governing 'F', so it becomes

' 'F' is satisfied by x iff p and x is F'

This gives us a different theory θ^*, which turns out to prove the same T-theorems as θ. This is because we can derive within θ^* a T-theorem of the form:

' 'Fa' is true iff Fa and p'

Since p is derivable from the theory θ^*, we can detach it from the above, deriving within θ^* the biconditional:

' 'Fa' is true iff Fa'

[12] See in particular Lewis (1974). Lewis discusses a permutation argument very like the one which we have been considering in Lewis (1983), Lewis (1984).

Conversely, θ proves:

‘‘Fa’ is true iff Fa’

But since p is derivable from the shared resources of θ and θ^*, it is derivable within θ. Basic logical moves then show us that the following can be derived within θ:

‘‘Fa’ is true iff Fa and p’

Which sentences can be adjoined to the clauses for predicates in this manner without disrupting the theorems provable from the truth theory? First, any logical truth – no matter how complex. Second, anything that can be constructed by the theory of syntax that the theory must embed to deal with the structural descriptive names for sentences. Since arithmetic can be coded into standard theories of syntax, we could adjoin a complex mathematical theorem: or, indeed, any unsolved, though provable, mathematical proposition. So ‘p’ could be a statement of Fermat’s last theorem.

There are various ways of using the phenomenon that Foster identified to make trouble for the Davidsonian project, of which I mention two. The first Foster problem is the following: if a truth-theory allows us to derive T-theorems whose right-hand sides intuitively ‘give the meaning’ of the sentences which they are paired with; then the same truth-theory will entail T-theorems whose right-hand sides *do not* stand in this relationship to the sentences with which they are paired. Thus, a T-theory cannot entail ‘‘London is burning’ is true iff London is burning’ without also entailing ‘‘London is burning’ is true iff London is burning and Fermat’s last theorem is true’. This first Foster Problem, then, is that any truth-theory will *overgenerate* T-theorems: entailing uninterpretative as well as interpretative T-theorems.

The second Foster problem is the following: if the constraint on selecting a truth-theory as meaning-giving is simply that it *prove* each of a target set of T-sentences, then θ will succeed just in case θ^* does, since they entail the same set of T-theorems. Thus, without even considering permutations, we have some apparently disturbing inscrutability results. Unless constraints over-and-above *entailing the relevant range of T-theorems* are adduced to determine which truth-theory is meaning-giving, we are forced to say that there is no fact of the matter whether θ or θ^* is correct. Since the axioms of the T-theory are supposed to ‘give the meaning’ of the words, this might mean,

for example, that there is no fact of the matter whether 'is burning' should be interpreted as *is burning*; or whether is should be interpreted as (e.g.) *is burning and everything is self-identical*, or even *is burning and Fermat's last theorem obtains*. Intuitively, however, these are distinct.

These two Foster problems differ in which aspect of the Davidsonian framework they target. The first causes problems for Davidson's *semantic theory proper* – in particular, it challenges Davidson's thought that a truth theory can 'give the meaning' of a sentence. The second Foster problem causes problems for Davidson's use of *radical interpretation* to pick out the 'correct' semantic theory for a language. Nevertheless, these Foster problems are two sides of the same coin. In effect, they both highlight the fact that entailment of a T-theorem by a truth theory is not a fine-grained enough relation to do the job which Davidson's project requires. If a given truth theory entails an intuitively meaning-giving T-theorem, it will also entail many others which are not intuitively meaning-giving: hence the first Foster problem. If a given set of T-theorems is entailed by a truth theory whose axioms intuitively 'get the facts about reference right', then all those T-theorems will also be entailed by a truth theory whose axioms look perverse.

5. Canonical derivations

Suppose that we have a truth theory θ with the axiom that 'London' is to refer to London, and that 'is burning' applies to something iff it is burning. Consider the following two T-sentences:

(A) ' 'London is burning' is true iff London is burning′

(B) ' 'London is burning' is true iff London is burning and Fermat's last theorem holds′.

At the heart of one of the most popular responses to Foster problems is the following thought. We need to identify a relationship – call it 'generation' – such that θ *generates* the T-sentence (A) but not the T-sentence (B). Mere derivability will not do the job – θ entails *both* (A) and (B) – so some more fine-grained relationship is needed. Suppose we could identify such a relation: then we would have the resources to resolve both versions of the Foster problem: the T-theorems that give the meaning of object-language sentences will be those that are *generated*, not merely entailed, by that truth-theory. The constraint

on identifying a truth theory as the correct one for a given linguistic community will be that it *generate* the appropriate 'data' – the target set of T-sentences – delivered through radical interpretation.

The burden on this response is to say what plays the generation-role. The literature on the Foster problems delivers an attractive characterization of this notion. 'Standard' proofs of T-sentences take a particular form. For the atomic case, one takes the axiom governing the respective name and predicate, and a compositional axiom, performs a couple of characteristic inferences, and one has the T-sentence. The derivations of the T-sentences such as (A) from a Foster-style theory, or T-sentences such as (B) from a theory like θ, however, involve *additional* inferential processes after this 'first' T-sentence is derived. Only at a later stage can we derive the target T-sentence.

It turns out one can formally characterize this idea of the 'first' T-sentence arrived at. The required notion is that of a *canonical* derivation: such a derivation is required to reflect the syntactical build-up of the object-language sentence concerned.[13]

The constraint that, in proving T-sentences that are meant to capture the meaning of sentences (so-called 'interpretative' T-sentences), we restrict ourselves to modes of proof that reflect the syntactic build up of the sentence, does not seem at all *ad hoc*. To prove the theorems expressing the truth conditions of a sentence within a theory of meaning, we should not have to appeal to anything more than semantic axioms that characterize the parts of the sentence, and compositional rules corresponding to how those parts fit together. But the use of additional logical moves – even comparatively trivial ones – would constitute an appeal to resources strictly extraneous to those provided by the particular facts about syntax and semantics of the sentence.

The notion of canonical derivation thus can discharge the 'generation' role characterized above: in particular, given data from radical interpretation in the form of a

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[13] The required notion is developed in Davies (1981, p.33). See Kölbel (2001) for an endorsement of this approach to the Foster problem, and references.

Much of the work on canonical derivations has been done by those working within the 'cognitive' tradition of Davidsonian philosophy of language, e.g. Larson and Segal (1995). But canonical derivations are also attractive to those interested in the rival 'metaphysics of meaning' tradition of Davidsonian philosophy of language. See, for example, Davies (1981) and Lepore and Ludwig (2005, ch.8).

set of T-sentences, the correct truth theory for the language will be one from which the data is *canonically derivable*. Foster-style deviant truth-theories will not induce inscrutability of predicate meaning; for the T-sentences *canonically* generated by such a theory will incorporate extraneous conjunctive elements such as p; in order to obtain the T-sentence that was the target we have to excise these elements by various non-canonical (though clearly correct) logical moves.

6. Permutations

The restriction to canonical derivations is a popular response to the Foster problems.[14] As outlined above, it blunts one inscrutability challenge: that articulated above as the *second Foster problem*. It is natural to look to see if it can resolve the other inscrutability challenge we have seen: the permutation arguments for radical inscrutability of reference.

We find that *the restriction to canonical derivations will vitiate the permutation arguments for inscrutability*. Recall that in an earlier section we noted that a 'permuted' truth theory θ^* allows one to derive in the first instance slight variants of the target T-sentences. What is *canonically* proven is, (e.g.)

' 'London is burning' is true iff $\phi^{-1}(\phi(\text{London}))$ is burning'

where ϕ is the permutation from which the account is constructed. True, the target T-sentence follows in entirely obvious steps. But it does not follow *canonically*. If, as suggested by the response to the Foster problem, the requirement on a successful semantic theory is that it generate the target results *canonically*, the permuted interpretations fail the test.[15]

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[14] Davidson himself favours a different response: see Davidson (1976).

[15] Davidson (1979,p.229) says that the standard and the permuted interpretation yield 'equivalent' assignments of truth conditions to sentences, and will assign 'identical' truth conditions for all sentences if the fact that ϕ is a permutation is part of our background theory. Wallace (1977) himself, cited by Davidson in this connection, discusses the matter with some care. Implicitly, he takes it that if our background theory entails that ϕ is a permutation (e.g. if our semantic machinery included an enumeration of all objects in the domain, and contained enough set theory to construct a permutation explicitly), then the two theories will allow one to derive 'the same' truth conditions. He also suggests that we might want to adopt a more coarse-grained notion of truth-condition, on which the two T-sentences mentioned earlier express the *same* truth condition. Neither author connects this issue with the Foster issue mentioned above.

7. Morals

The first and second Foster problems, I emphasized, have different targets: one challenging Davidson's thought that a truth theory 'gives the meaning' of a sentence, the other challenging the ability of the data delivered by radical interpretation to pick out the 'correct' semantic theory for a language. But given the formal similarities between these two versions of the Foster problem, it is overwhelmingly likely that they will have a common solution. This is borne out by the familiar 'canonical derivation' response to Foster outlined above.

I have just argued that the response extends to the case of permutations. Given the proposed constraint – that the correct truth theory for a language must allow one to *derive canonically* (generate) the target T-sentences – the permutation argument fails. For what is *generated* by a given theory is *not* the same as what is *generated* by a permuted alternative to that theory, even though they *entail* the same range of T-sentences. The permutation argument fails, on this account, for exactly the reason the second Foster problem falls. I conjecture that *any* response to this form of the Foster problem would afford a parallel response to the permutation argument, and vice response.

My moral is to be that the Foster and permutation arguments are not separate puzzles: the second Foster problem and the permutation argument are really two instances of the same inscrutability puzzle. I finish, however, by suggesting that both the (second) Foster problem and permutation-style challenges remain outstanding challenges for the radical interpretation project.

In prosecuting Davidsonian radical interpretation, we need to know the answer to two questions:

1. **Which data?** What are the data (the target T-sentences) which the radical interpreter provides?
2. **Which theory?** Given one has selected a set of target T-sentences, which meaning-giving theory is selected?

When evaluating the cogency of the Foster inscrutability argument or the permutation argument for radical inscrutability of reference, it is the 'which theory?' question we

were focusing upon. For the sake of argument, we granted that a set of target T-sentences has been selected.

The answer to the 'Which theory?' question considered above is the following: the meaning-giving truth theory is one from which the target T-sentences are canonically derivable. Thus, we have seen that *if* a particular set of target T-sentences is chosen containing:

''London is burning' is true iff London is burning′

then neither the Foster- nor the permutation-deviant interpretations will generate the data in the required canonical fashion. The conditionalisation is significant, however. Foster- and permutation-inscrutability threaten once more if there is indeterminacy in *which T-sentences* the radical interpreter delivers as the targets for a truth theory to generate. In particular, if it is indeterminate whether the target is the intuitively interpretative T-sentence above, or rather:

> ''London is burning' is true iff $\phi^{-1}(\phi(\text{London}))$ is burning'

then we get the permutation problems back. If it is indeterminate whether the target is that T-sentence or rather:

> ''London is burning' is true iff London is burning and everything is self-identical.'

then we get the Foster problems back.[16] The threat of inscrutability, whether in permutation- or Foster-style, is thus not removed by moving to canonical derivability as a constraint on the 'which theory?' aspect of radical interpretation. Rather, it is interestingly relocated: inscrutability of subsentential meaning will arise if it is indeterminate *which data (target T-sentences) the radical interpreter should provide*.

[16] This is distinctively a challenge that the 'metaphysics of meaning' Davidsonians face. Only in this setting is there a challenge to say *which* T-sentences one should begin with. Therefore 'cognitive' Davidsonians such as Larson and Segal (1995) do not face the threat of Foster or permutation challenges.

Foster-problems and inscrutability problems have been considered separable issues for the Davidsonian. Indeed, Davidson himself takes differing attitudes to them: resisting Foster-style reasoning, while accepting radical inscrutability of reference on the basis of permutation reasoning. It is doubtful that such a view is coherent, though: as we have just seen, both the Foster-deviant and permutation-deviant interpretations canonically generate T-sentences that are equivalent to 'standard' T-sentences by trivial mathematico-logical moves.

Attention turns, therefore, from factors constraining theory-choice on the basis of data (the 'which theory?' question) to factors constraining the representation of this data itself (the 'which data?' question). Absent an appropriately determinate answer to the latter, the Foster problems, often assumed resolved by the restriction to canonical derivations, are as pressing as ever.[17] Given an answer to this question, the permutation problems, which are often regarded as an unacceptable cost of a purely Davidsonian approach, are already answered. The 'which data?' question is a fascinating one, which deserves further attention; but whichever way this pans out, the Foster-problems and permutation-problems stand and fall together.

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[17] This goes only for the *second* Foster problem: the first is, I think, adequately addressed by canonical derivations. On the other hand, if subsentential meaning really is inscrutable, it's hard to see why the first Foster problem would be disturbing.

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