

The problem of factives for sense theories

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1. Introduction

According to Kripke (1972: 287–90), descriptivist sense-theories of names incorrectly predict necessary truths where there are only contingent ones. Kripke’s principal target is *famous-deeds* descriptivism (1972: 291), but his objections are equally effective against *theory-laden* descriptivism. In the latter, the a priori correct theory of reference is built into the proposed sense-giving descriptions. An example, exploiting the Kripke-Geach historical chain account (Kripke 1972: 298–300; Geach 1970: 288–9), is the proposal that the sense of a name NN is ‘the person called NN by those from whom I acquired the name’. But Kripke’s modal objections still arise, for it is contingent that Socrates is called ‘Socrates’ by those from whom I acquired the name: in some possible world, there is a Geachian apostolic succession for ‘Socrates’ which leads to me, but begins with some x other than Socrates.¹

A standard but unpromising response to these modal problems is that they are solved if we use ‘actually’ to convert the relevant descriptions into rigid designators (for objections to this move, see Soames 2002: 40–43). In this note I will instead discuss two other proposals which, at least initially, look to have better prospects

1. Geach (*loc. cit.*) wrote: ‘...for the use of a word as a proper name there must in the first instance be someone acquainted with the object named...But...the...name...can be handed on from one generation to another...Plato knew Socrates, and Aristotle knew Plato, and Theophrastus knew Aristotle, and so on in apostolic succession down to our own times. That is why we can legitimately use “Socrates” as a name the way we do.’

of success. One is a qualified version of a famous deeds account, the other a modified theory-laden account.

2. *Rigidified names*

Rather than rigidify descriptions, Gluer and Pagin (2006) suggest that *names* be rigidified. For them, a typical name NN expresses a non-rigid sense (they advocate a cluster version of famous-deeds descriptivism, p.532 n.36). But the name itself will behave as a rigid designator *in modal contexts*, because, in effect, it contributes the rigid description ‘the thing actually identical to NN’, with possibilist ‘the’,² to logical form.³ So ‘ \diamond (Socrates exists but does not philosophize)’ is true because the thing actually identical to Socrates exists at worlds without philosophizing, *even if* the name ‘Socrates’ has a sense that requires anything it denotes to philosophize.

A serious difficulty for this view is raised by *mixed* contexts, where a name occurs in the scope of a modal operator, and *also* in another intensional context in which non-rigidification appears desirable.⁴ For Gluer and Pagin’s semantics, mixed contexts that involve *factive verbs* are especially problematic. For example, the semantics appears to allow for the satisfiability of

- (1) \diamond (Hesperus has a moon and someone establishes that Hesperus has no moon)

2. By *possibilist* ‘the’ I mean a ‘the’ which at each world w ranges over all possible objects D , not just those $x \in D$ that exist at w .

3. This is not Gluer and Pagin’s favored way of formulating their view, but is, as they note, equivalent to it (*op. cit.*, p. 513, n.6). Their official proposal (513–4) is that in evaluating a formula ϕ (of a language without attitude contexts), a special evaluation rule is used for those atomic subformulae of ϕ that (i) contain individual constants, and (ii) are within the scope of a modal operator in ϕ : such an atomic formula $Ft_1 \dots t_n$ is true at w iff the n -tuple of the *actual* values of $t_1 \dots t_n$ is in the extension of F at w . This rule breaks the usual connection between $\Box A$ ’s being true at a world and A ’s being true at every world for non-modal A which contain names, so I prefer to trade it for (unobvious) logical form differences.

4. As far as I know, Mark Richard was the first to raise mixed-context problems for certain responses to Kripke’s modal objections. See (Richard 1993:246–51).

(or colloquially, “it’s possible to establish that Hesperus has no moon even if it has one”). But (1) seems false, since there is a strong intuition that it entails the absurd

(2) $\diamond(\text{Hesperus has a moon and Hesperus has no moon})$

by the principle of *Weakening*:

(W) $\diamond(A \ \& \ B), \ \Box(B \rightarrow C) \vdash \diamond(A \ \& \ C)$.

Here $\diamond(A \ \& \ B)$ is (1), $\diamond(A \ \& \ C)$ is (2), and the second premiss applies the necessary factivity of ‘establishes’:

(3) Necessarily, if someone establishes that Hesperus has no moon, then Hesperus has no moon.

In effect, the inference from (1) to (2) is an enthymeme instantiating (W), and (3) is the missing premiss.

Before discussing this argument, we should fix whether the two occurrences of ‘Hesperus’ in (1) have the same semantics. The first ‘Hesperus’ in logical form is ‘the thing that is actually Hesperus’, while the second may simply be ‘Hesperus’, or may be, again, ‘the thing that is actually Hesperus’. Rather than settle this on the merits, we shall investigate each option, beginning with the assumption that the second ‘Hesperus’ is not rigidified, or more generally,

(A1) Names immediately within the scope of an attitude verb are not rigidified, even if the wider context is modal.

On assumption (A1), the input to ‘establishes’ in (1) will be the customary proposition *that Hesperus has no moon*.

To dissolve the threat the inference from (1) to (2) represents, it must be argued

either (a) that (1) has no true reading, or (b) that (2) is not soundly inferred from (1) using (W), or (c) that (2)'s conjunction is not really contradictory. (a) can be ruled out, though, since under assumption (A₁), both famous deeds and theory-laden descriptivism deliver a true reading for (1). For there are possible worlds where the thing that is actually Hesperus has a moon, and where someone establishes the descriptivist proposition expressed by 'Hesperus has no moon', worlds where the sense of 'Hesperus' picks out something other than Venus. So (W) will deliver (2) unless option (b) holds, which requires (3) to be false. However, that (3) is false if (1) is true is exactly right. For under assumption (A₁), the two occurrences of 'Hesperus' in (3) have different semantics, just as they do in (1). So (3) is just (1)'s negation.

The upshot is that on assumption (A₁), Gluer and Pagin's semantics is internally consistent, for the premisses of (W) cannot both be true. But this defence of the semantics comes at a high price. On their semantics there is a true reading of (1), which is already damaging. Moreover, independently of any theory, (3) is *true*, for it is *not* possible to establish that Hesperus has no moon if it has a moon. Perhaps there is more than one reading of (3), but on any normal understanding of the sentence, there is no reading on which it is false. In particular, we only have one copy of 'Hesperus' in our lexicons, so the name is not like 'Socrates', which might denote the Greek philosopher, the Brazilian footballer-philosopher (Brazil's captain in the 1980's also has a Ph.D. in philosophy), or the recent Portuguese Prime Minister, and shift in the same sentence. There is therefore no 'reading' of (3) on which it fails due to a reference-shift in 'Hesperus' of that sort. And without that possibility, the idea that (3) is false is unintelligible. So the argument for internal consistency of the semantics that we have given depends on a non-existent way of understanding (3). This is strong evidence that it is incorrect to impute different behaviour to names

directly within modal contexts and names not so situated.⁵

All this is with (A1) in force. So we can take the present difficulties as a reason to reject (A1) in favor of

- (A2) Names occurring within the scope of a modal operator O are rigidified, no matter what their deeper embeddings in the scope of O .

But (A2) generates a problem with understanding the attitude ascription in (1), if its ‘Hesperus’ is rigidified.

One possibility is that the name simply determines an object, despite being within the scope of ‘establishes’. But then the name ‘Hesperus’ makes the same contribution to the ascription as would ‘Phosphorus’, with the result that the whole point of rigidification is undercut. For it will follow that

- (4) Necessarily, anyone who {establishes/believes/insists} that Hesperus is Hesperus {establishes/believes/insists} that Hesperus is Phosphorus.

Defeating Kripke’s modal objections at the price of (4) is not an accomplishment if we are trying to defend theories whose rejection of (4) is one of their crucial features.

If the second occurrence of ‘Hesperus’ in (1) is to be rigidified, we must therefore require its conceptual content, *the thing actually identical to Hesperus*, to figure in determining the proposition which is said to be established. This content is different from *the thing actually identical to Phosphorus* granted that ‘Hesperus’ and ‘Phosphorus’ have different senses; so (4) will not follow. But what exactly is in-

5. Gluer and Pagin do not discuss mixed contexts with factives, but their discussion of other mixed context examples appeals to scope distinctions (533–4). But it is irrelevant that the semantics can generate *some* readings of (3) on which it is true (and (1) concomitantly false), by raising the ‘Hesperus’ in the attitude context out of it. The problem is that the semantics also predicts readings on which these truth-values are reversed, readings which are glaring by their absence.

volved in the concept *the thing actually identical to Hesperus* partly determining a constituent of the proposition established in a non-actual world? Presumably it does this by *being* a constituent of the proposition. But we are considering the content-proposition of an attitude held in a non-actual world w that supposedly verifies the conjunction in (1), and since this proposition contains no \square or \diamond , the constituent *actually* is redundant: *actually identical to Hesperus* is equivalent to *identical to Hesperus*, as it is in the words that might be used in w to give voice to the proposition, ‘the thing actually identical to Hesperus has no moon’. So it is the denotation of ‘Hesperus’ in w that is established to lack a moon in w , while the actual denotation of ‘Hesperus’ has a moon in w . Curiously, then, replacing (A1) with (A2) turns out to have no effect: the references of the two occurrences of ‘Hesperus’ still diverge, and the elusive readings of (1) as true and (3) as false are reinstated.

3. *Two-dimensionalism*

Mixed-context examples with factives also pose problems for the ‘two-dimensional’ account of meaning developed by Chalmers in a series of papers (e.g., 2002a,b; 2006, 2008, 2011).⁶ According to this account, a sentence S is associated with *two* types of sense, *subjunctive* and *epistemic*. The subjunctive sense of S is a function from *metaphysically* possible worlds (for short, ‘worlds’) to truth-values, while the epistemic sense of S is a function from *epistemically* possible worlds (‘scenarios’) to truth-values. A scenario, in turn, is a complete way things might have *turned out* to be, constrained only by the a priori, and is identified with a world along with certain other identifiers (Chalmers 2006: 75–89). Chalmers accepts that Kripke has shown the subjunctive sense of a name to be a constant function from worlds to individu-

6. Ironically, the mixed-context examples in (Richard 1993) were given as part of a critique of the two-dimensionalist account of the contingent *a priori* in (Forbes 1989).

als, but says this is irrelevant to epistemic sense, which is a possibly non-constant function from scenarios to individuals that reflects the ‘inferential role’ of the name (2008: 592–3).

Define a *pure* epistemic operator O to be one such that for any sentences S_1 and S_2 with the same epistemic senses, the operation expressed by O produces the same output given the pair of S_1 's subjunctive and epistemic senses as it does given the pair of S_2 's subjunctive and epistemic senses. Correspondingly, *pure subjunctive* operators (such as Kripke's modal operators) do not distinguish sentences with the same subjunctive senses, even when their epistemic senses are different.

Simple ways of instantiating Chalmers' framework are refuted by mixed-context examples with factives like (1) and (3). Suppose the epistemic sense of a name is captured by a famous deeds description, and that attitude verbs are pure epistemic operators. Then (1) is true, and (3) false, because of worlds and scenarios based on them where Venus has a moon, while the heavenly body that satisfies the epistemic sense of ‘Hesperus’ has no moon. But if our discussion of rigidified names in §2 showed this to be unacceptable, it remains so here.

However, Chalmers has a more complex view about names and attitude verbs. He favors *theory-laden* descriptivism (in a version based on apostolic succession), but only over other forms. The descriptions it gives rise to may be no more than *approximations* of the epistemic sense of a name, subject to counterexample; perhaps a name's inferential role can't be captured by any description (2002a: 619,641; 2008: 593). And he does not think that attitude verbs are pure epistemic operators (Twin Oscar doesn't believe that water is wet, though his ‘water is wet’ has the same epistemic sense as Oscar's). Rather, he holds that such verbs are sensitive both to the subjunctive and the epistemic senses of their complements, perhaps in the style of

'hidden-indexical' semantics (2002b: 622-4; 2008: 597), in which believing that Hesperus is a planet is believing the subjunctive sense *under* the epistemic sense, or believing it *as such*.⁷

Nevertheless, problems involving mixed contexts with factives persist. An example like

- (5) E_{\diamond} [Hesperus isn't Phosphorus and someone establishes that Hesperus is Phosphorus]

is problematic (' E_{\diamond} ' means 'it is epistemically possible that', expressing existential quantification over scenarios). (5) is false, because its embedded conjunction is epistemically impossible, because the latter's second conjunct entails something explicitly and evidently contradicted by its first conjunct. But does two-dimensionalism agree? It is the *epistemic* senses of the conjuncts that matter to the truth-value of (5), and the second conjunct, according to Chalmers' views about attitude verbs, is made true at a world w by the *subjunctive* sense of 'Hesperus is Phosphorus' being established at w in a way that involves observations of Venus. So the epistemic sense of the second conjunct should articulate a Venus-focussed process of establishing a proposition in a scenario, and it is far from obvious why there are no such scenarios that also verify the first conjunct.

Moreover, even if no factive attitude verb is purely epistemic, the epistemic modalities certainly seem to be, the ' E_{\diamond} ' of (5) and its dual ' E_{\square} ' ('it is epistemically necessary that', also definable by universal quantification over scenarios). Suppose, then,

7. This formulation is a Russellian variant of the hidden indexical semantics of (Forbes 1990, 1996). Establishing that Hesperus = Hesperus, *as such*, would involve, say, confirming the existence of Hesperus and then providing a one-line proof appealing to =I. This also establishes that Hesperus = Phosphorus, but not in the usual sense of establishing it *as such*, which requires more astronomy. Chalmers (2011) modifies his account of attitude verbs, but not in a way that makes a difference here.

that we accept that a theory-laden description based on apostolic succession offers the best approximation to a name's epistemic sense. An apostolic succession for a name is a sequence of events which begins with an initial baptism of an object and continues with the name being passed on from speaker to speaker, each speaker acquiring it with the deferential intention (Kripke 1972: 302) to preserve its reference. A *fully reference-preserving* succession is one in which the object each speaker uses the name for is the one that was baptized with the name at the start. Then Chalmers' view threatens to imply the apparently contradictory

- (6) $\diamond[(i)$ there is a unique and fully-reference-preserving apostolic succession for my name 'Hesperus' and the object whose initial baptism begins this succession *isn't* Hesperus, and, (ii) E_{\square} (if there is exactly one object whose initial baptism begins a unique and fully-reference-preserving apostolic succession for my name 'Hesperus', then Hesperus is that object)].

The possibility of (i) was noted at the outset. And (ii) seems compossible with (i), even though the final 'Hesperus' in (ii) denotes Venus and thus worlds verifying (i) falsify the conditional in the scope of the ' E_{\square} '; for that is an observation about the *subjunctive* sense of the conditional, while ' E_{\square} ', we are supposing, is sensitive only to the *epistemic* sense of its complement. The conditional is *epistemically* necessary because its antecedent's conditions on the apostolic succession exclude the possibility of counterexample, and the epistemic sense of its consequent is something like "the object referred to with 'Hesperus' by those at the last step of the succession is that object". So the whole conditional is a triviality whose form might as well be written $p \rightarrow p$. Of course, (ii) occurs in the scope of ' \diamond ' in (6), so we are assuming that epistemic necessity is, at least sometimes and to some extent, subjunctively persistent. But given that the form of the conditional in (ii) is essentially $p \rightarrow p$, sub-

stituting it for A produces a justifiable instance of ' $E_{\square}A \rightarrow \square E_{\square}A$ '.⁸

In deriving an explicit contradiction from (6) we would also require necessary factivity of ' E_{\square} ', that is, ' $\square(E_{\square}A \rightarrow A)$ '. This principle is as non-negotiable as the necessary factivity of 'establish', at least on the conventional understanding of epistemic possibility and necessity. A claim of epistemic possibility is usually understood as a *consistency* claim: in any context c , there is some body of knowledge K_c that is given (only a priori knowledge in Chalmers' cases), and $E_{\diamond}A$ is true in c iff A is consistent with K_c (see further DeRose 1991). This makes ' E_{\square} ' necessarily factive granted that the inconsistency of $\sim A$ with what's known guarantees A , whatever the circumstances.⁹

In fact, Chalmers treats ' E_{\diamond} ' as an existential quantifier over scenarios generated not in terms of relative consistency, but in terms of possible worlds combined with certain other identifiers (the details are not germane here). Since there is no genuinely possible world where Hesperus isn't Phosphorus, this means that to make 'Hesperus isn't Phosphorus' true at a scenario, either 'Hesperus' or 'Phosphorus' has to be allowed to denote something other than Venus. But then we only have a scenario where Hesperus isn't x , for some x that *isn't* Phosphorus; or where, for some x that *isn't* Hesperus, x isn't Phosphorus; or their combination. Intuitively,

8. It is the subjunctive sense of the conjunction of (i) and (ii) that matters to the truth-value of (6), but presumably both the subjunctive and the epistemic sense of this conjunction are computed. Similarly, both a subjunctive and an epistemic sense are computed for (ii). I have argued that the subjunctive sense of (ii) is true and the operation expressed by \square preserves its truth (' $E_{\square}A \rightarrow \square E_{\square}A$ '); I take it the epistemic sense of (ii) is also true, but inert in determining the truth-value of (6).

9. Chalmers' discussion (2011, n.24) of Dever's Nesting Problem (Dever 2007) suggests a difficulty with a purely epistemic ' E_{\square} '. Suppose that A is both epistemically necessary and contingent: $E_{\square}A \ \& \ \diamond \sim A$ (e.g., the conditional in (6ii)). Then necessary factivity, $\square(E_{\square}A \rightarrow A)$, and necessity of e-necessity, $E_{\square}A \rightarrow \square E_{\square}A$, produce an apparent contradiction, $\diamond(A \ \& \ \sim A)$. If the contradiction is genuine, it could be concluded that a purely epistemic ' E_{\square} ' is illegitimate (cf. 'tonk'). But the contradiction is spurious if there is an equivocation on A in $\diamond(A \ \& \ \sim A)$, which there is from the two-dimensionalist perspective. For $\diamond \sim A$ is made true by a world w falsifying the *subjunctive* sense of A , while, if ' E_{\square} ' is purely epistemic, only the *epistemic* sense of A need be true at w in virtue of the truth of $E_{\square}A$ at w .

this doesn't establish the epistemic possibility that *Hesperus* isn't *Phosphorus*, for at least one of the objects the semantics invokes is irrelevant. The conventional, one-dimensional, account of epistemic modalities doesn't have this problem,¹⁰ for it is the very same proposition, *that Hesperus isn't Phosphorus*, which is at once epistemically possible (in contexts where it's consistent with what's known) and subjunctively impossible: the different statuses arise simply because of the difference between epistemic and subjunctive possibility, not because these types of possibility apply to different types of proposition. And because it only recognizes a single type of proposition, it is much easier for one-dimensionalism to account for the falsity of (5), and to avoid (6).¹¹

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10. The problem might be ameliorated by analysing epistemic modalities as introducing an epistemic counterpart relation; e.g., ' $E_{\diamond}(h \neq p)$ ' would mean, say, that there's a world where an epistemic counterpart of *Hesperus* isn't identical to some epistemic counterpart of *Phosphorus*. I doubt that this is two-dimensionalism, though.

11. This paper is excerpted from my contribution to a 2010 workshop on mental files at the Institut Nicod. For discussion on that occasion of the part developed here, I thank Michael Murez, Jim Pryor, François Recanati, Laura Schroeter and Isadora Stojanovic. I have also benefited from the reactions of audiences in Boulder, Bucharest and Budapest. Recent drafts have been improved by comments from Kit Fine, Kathryn Gluer-Pagin, Peter Pagin, Isadora Stojanovic (again), Zsafia Zvolenszky, and especially David Chalmers.

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