By the early 1970s, and continuing through 2001, David Lewis and Saul Kripke had taken over W.V.O. Quine’s leadership in metaphysics, epistemology, philosophy of language, and philosophical logic in the English-speaking world. Quine, in turn, had inherited his position in the early 1950s from Rudolf Carnap, who had been the leading logical positivist -- first in Europe, and, after 1935, in America. A renegade positivist himself, Quine eschewed apriority, necessity, and analyticity, while (for a time) adopting a holistic version of verificationism. Like Carnap, he placed philosophical logic and the philosophy of science at the center of philosophy. While not entirely avoiding metaphysics and epistemology, he tried to “naturalize” both. By contrast, Lewis and Kripke embraced the modalities Quine rejected. They also had no sympathy for his early verificationism, or his twin flights from intension and intention. As for philosophy of science, it was transforming itself into specialized philosophies of the several sciences, and did not lend itself to unified treatment. Although Lewis had deep interests in scientific issues, and was commendably realist about science in general, science itself was not the center of own distinctive approach to philosophy.

Despite similarities in their opposition to Quine, the differences between Lewis and Kripke were large – especially in the semantics and metaphysics of modality. They also had different philosophical styles. Whereas Lewis was a wide-ranging thinker who pieced together a systematic philosophical world view, Kripke gave little thought to system, focusing instead on a few central topics. There is, therefore, no conflict between the two on many of the issues on which Kripke was silent. However, the modal semantic and metaphysical issues on which they

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1 Though they did so in very different ways. Whereas Lewis continued the Quinean identification of necessity with
differed were so central to the philosophy of their era that their deep differences had widespread repercussions.

I begin with one such difference, broached in Lewis (1973).

“...I believe that there are possible worlds other than the one we happen to inhabit. If an argument is wanted, it is this. It is uncontroversially true that things might be otherwise than they are. ... But what does this mean? Ordinary language permits the paraphrase: there are many ways things could have been besides the way they actually are. On the face of it, this sentence is an existential quantification. It says that there exist many entities of a certain description, to wit ‘ways things could have been’. I believe things could have been different in countless ways: I believe permissible paraphrases of what I believe: taking the paraphrase at its fact value, I therefore believe in the existence of entities that might be called ‘ways things could have been’. I prefer to call them ‘possible worlds’.” (84, my emphasis)

Although there is much here with which to agree, there is also a point of contention. There are many ways my desk could have been but isn’t; e.g., it could have been clean and uncluttered. These “ways” – being clean and uncluttered – are not themselves desks existing somewhere else, numerically distinct from mine; they are properties my desk could have had but doesn’t. To call them “possible desks” would not be to respect common sense and ordinary language but to flout them. Similarly, the “ways” posited in modal semantics are not alternate concrete universes, but properties (treated as maximal) that could have been instantiated. Metaphysically possible worlds, or better world-states, are properties that the (or a) universe could have had. For a proposition p to be true at w is for it such that had w been instantiated, p would have been true. For a sentence S to be true at w is for S to (actually) express a proposition that is true at w.²

The contrast with Lewis’s “modal realism” is illustrated by (1), drawn from Lewis (1986).

1. Hubert Humphrey could have been so-and-so.

According to the Kripke-inspired view just sketched, (1) is true iff there is a world-state the instantiation of which would have made the proposition that Humphrey is so-and-so true. By

² See Soames (2007), chapter 5 of (2010), and (2010b).
contrast, Lewis takes (1) to be true only if there is a concrete universe w causally disconnected from ours, and an individual HH who is both so-and-so and an inhabitant of w.\(^3\) Humphrey inhabits our universe and is, we may suppose, not so-and-so. Since HH is, while Humphrey is not, so-and-so, Humphrey and HH are not the same person.\(^4\) Rather, HH is Humphrey’s counterpart, sharing the characteristics of him we wish to keep fixed when evaluating (1).

This is already shocking. How could the truth of the claim that Humphrey could have won the 1968 U.S. Presidential election, require the existence of an alternate universe in which someone similar to Humphrey wins an election similar to the U.S. Presidential election of 1968? Surely, if the truth of our original claim did require that, we would be in no position to know or justifiably accept it. Lewis, implausibly, thought otherwise; worse, he took his metaphysical story to be what we mean when we say that Humphrey could have won. The “incredulous stare” (as he put it) that was regularly evoked by his claim is evidence that it isn’t what we mean.

Lewis thought that incredulous staring should cease, because any analysis of modal truth must identify Humphrey’s being so-and-so at w with something, potentially other than him, being a constituent of w and bearing some property potentially other than being so-and-so.

“I think counterpart theorists and ersatzers [Lewis’s derogatory name for those whose modal metaphysics differs from his] are in perfect agreement that there are other worlds (genuine or ersatz) according to which Humphrey…wins the election. And we are in equal agreement that Humphrey…is not part of these other worlds. Somehow, perhaps by containing suitable constituents…but anyhow not by containing Humphrey himself, the other world represents him as winning….Counterpart theory does say…that someone else…enters into the story of how it is that another world represents Humphrey as winning…Insofar as the intuitive complaint is that someone else gets into the act, the point is rightly taken. But I do not see that is any objection, any more than it would be an objection against ersatzism that some abstract whatnot gets into the act. What matters is that someone else, or the abstract whatnot,

\(^3\) On pp. 5-6 of Lewis (1986) Lewis says that the operator in w is like the operator in Australia; ‘In w, HH is having dinner’ is like ‘In Australia, Hubert is having dinner’. Just as the latter says that Hubert is located in Australia and is having dinner, so the former says that HH inhabits w and is having dinner.

\(^4\) See Lewis (1986) pp. 199-201, where he argues in this way that the idea that an individual might have different intrinsic properties at different worlds is unintelligible.
should not crowd out Humphrey himself. And there all is well. Thanks to the victorious counterpart, Humphrey himself has the requisite modal property."\textsuperscript{5}

Suppose it is false at the actual world (state) that Humphrey is so-and-so. Still, it may be true at w. For this to be so, Lewis argued, it can’t be required that Humphrey be both a genuine constituent of w and so-and-so (since he isn’t so-and-so). So, Lewis assumed, what is required must be either (i) that something other than Humphrey is both so-and-so and a constituent of w, or (ii) that Humphrey has some property related to being so-and-so, while also being, somehow, a constituent of w, or (iii) that something other than Humphrey is a constituent of w that has a property related to being so-and-so. (i) is counterpart theory;\textsuperscript{6} (iii) is exemplified by an “ersatz view” in which “worlds” are sets of sentences, some expression denoting Humphrey is a constituent of one of the sentences of w, and the property it has \textit{is referring to an individual said by the w-sentences to be so-and-so}; (ii) is a variant of (iii) that Lewis illustrates with the idea that Humphrey might be treated as a word that denotes itself, and \textit{occurs in a sentence that says of its referent that it is so-and-so}.\textsuperscript{7} In each case, Humphrey’s having the modal property being one who could have won the election is constituted either by someone else’s having that property, or by something having some other property. Hence, it is no objection to counterpart theory that it views modal properties as indirectly constituted; every theory must.

Really? According to the Kripke-inspired alternative sketched above, Humphrey could have won the election iff some maximal property W, of which he himself is a constituent, could have been instantiated, and if it had been, would have assured his victory. Is this an instance of Lewis’s variant (ii), in which the related property is being such that one would have been so-and-

\textsuperscript{5} Ibid., p. 196.
\textsuperscript{6} (i) is counterpart theory, if being so-and-so is a “pure” property that doesn’t itself involve any individuals; if it does involve an individual o, then the property had by the Humphrey counterpart at w will involve an o counterpart, and so will not be identical with being so-and-so.
\textsuperscript{7} Lewis (1986), p. 197.
so if w had been instantiated? Call it what you like. The key point is that the Kripke-inspired analysis does not attempt to explain how Humphrey’s having the property being one who could have won the election is constituted. Instead, it takes the modal notions used to state (1)’s commonsensical truth conditions to be primitive.

This is no more objectionable than using quantifiers to state the truth conditions of quantificational sentences. It isn’t a requirement on a semantic analysis of a construction that “the analysis” constitute a reductive definition. Why, then, should we require modal semantics to allow us to reduce modal to non-modal notions? Although Lewis had what was for him an important reason for doing so, Kripke and many others regard the escape from Lewis’s unacceptable alternatives to be itself a compelling reason not to go down that road. The way to make this escape is not to retreat to fictionalism about possible worlds, which is only attractive by comparison with Lewis’s unrealistic “realism.”8 The way to escape Lewis’s metaphysical jungle is to take certain modal notions to be primitive, and to use them to construct a plausible conception of possible world-states.

For the Kripkean, world-states are properties ascribable to the universe. Just as we recognize properties ordinary objects don’t have, but could have had, so we should recognize (maximal) properties – metaphysically possible world-states -- the universe doesn’t have, but could have had. For any such property W, the universe could have had W, and if did, certain propositions would have been true. Note the use of modal notions – what could have been, and what would have been true if such and such had been so-and-so. Possible world-states are not defined in non-modal terms. Nor is there any attempt to reduce these two modal notions to non-modal notions. Nothing rules out such a subsequent reduction, but nothing requires it either.

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8 See Gideon Rosen (1990, 1995).
The chief reason Lewis couldn’t, or wouldn’t, adopt this non-reductionist approach came from his commitment to an ambitious version of philosophical naturalism, the goal of which was to reduce the mental to the physical, causation to counterfactuals, counterfactuals to possible worlds, and possibility and necessity to quantification over ordinary (though very large) objects. The desired destination was a homogeneous reality consisting of momentary point-sized objects (given in physics) instantiating purely qualitative universals – natural properties and relations (also given in physics) -- related by similarity, difference and spatio-temporal relations across multiple universes, but not related by “occult,” empirically unexplainable forces or connections. To those attracted by this vision, one may say, “Wishing doesn’t make it so.” For the faithful, however, the final reduction (of necessity and possibility to quantification over the large but ordinary) is indispensible, since without it the other reductions don’t lead to any exciting or satisfying system.

Here we see what appears to have been the enduring influence of David’s teacher, Quine, the great champion of naturalism and extensionalism, and the uncompromising scourge of the modalities. The underlying philosophical purpose of modal realism and counterpart theory was reduce an intensional object-language to a purely extensional semantic metalanguage, in the service of an antecedently desired conception of reality. Whereas Quine taught that vindicating naturalism and extensionalism required eliminating intensional facts and rejecting intensional constructions, his student, David Lewis, tried to show that intensional facts are just a species of extensional facts, and that intensional constructions in language are no threat to the integrity of an austere, naturalistic vision of reality.

With this in mind, consider the following passage from section 45 of *Word and Object*. 
“If we are limning the true and ultimate structure of reality, the canonical scheme for us is austere scheme that knows no quotation but direct quotation and no propositional attitudes but only the physical constitution and behaviour of organisms.”

Although Quine’s immediate topic was propositional attitudes, the intent of his remark went much further: no indirect quotation, no operators on that-clauses (including ‘it is possible/necessary that’), austere extensional systems of representation, and, in the reality to be described, only the physical constitution of things and the behavior of organisms. Whereas Quine married metaphysical naturalism to overtly extensional systems of representation, Lewis strove to save the former by divorcing it from the latter, using extensional descriptions of a metaphysically stupefying reality to interpret superficially intensional systems of linguistic representation.

The parallel between Lewis and Quine was not limited to their metaphysical outlook; it also included their mature views of physics. After his marked holistic verificationist period, the author of Quine (1969, 1970) wrote mostly as a scientific realist, as illustrated in passage from the former.

“For theory in physics is an ultimate parameter. There is no legitimate first philosophy, higher or firmer than physics, to which to appeal over physicists’ heads...[A]dopt for now my fully realistic attitude toward electrons and muons and curved space-time, thus falling in with the current theory of the world despite knowing that it is in principle methodologically under-determined. Consider, from this realistic point of view, the totality of truths of nature, known and unknown, observable and unobservable, past and future. The point about indeterminacy of translation is that it withstands even all this truth, the whole truth about nature.”

For Lewis, as for the later Quine, physical science was the ultimate parameter, which no philosophical theory could afford to contradict, radically reinterpret, or diminish the epistemic and metaphysical significance of. Unlike Russell (1914, 1918), or Carnap (1928), Lewis did not favor any attempt to translate or reinterpret science in phenomenalistic terms. Unlike Quine

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9 Quine (1960), pp. 220-221.

10 Page 303 of Quine (1969). Although Quine was willing to accept physical theories at face value, he never explicitly repudiated holistic verificationism, and was, it would appear, never fully the scientific realist that Lewis was.
(1948, 1951) or Carnap (1950), he never dreamed of identifying the content of a scientific theory with the totality of observational statements supporting it. Unlike, Van Fraassen (1980), he didn’t merely accept physical theory as way of producing reliable observational results; he believed it, and took it to be our most accurate conception of reality.

In keeping with his scientific realism, Lewis didn’t attempt to explain away theoretical terms, but took them to stand for genuine realities. For him, their referents were determined by Ramsification; electrons and muons, for example, are whatever elements of reality best fill the ‘electron’ and ‘muon’ roles in our theories (making them at least approximately true). In this he diverged from Kripke. For the latter, many theoretical terms – including ‘heat’, ‘light’, and ‘electricity’ – refer to natural kinds with which we are cognitively acquainted (through their instances) in a way that secures reference, without tying it to the approximate truth of any theory in which the terms occur.¹¹ While versions Kripke’s story have won widespread acceptance (for many such terms), it is not unreasonable to suppose that some highly theoretical terms may best be understood roughly along the lines Lewis suggests.¹² Kripkeans needn’t have a problem in accepting a version of this limited friendly amendment. Whether or not followers of Lewis can afford such eclecticism is less clear. His own commitment to descriptive reference fixing was nothing if not ferocious and pervasive. In addition to covering all natural kind terms and ordinary proper names, it was also embedded in his thoroughgoing analytic functionalism.¹³

Returning to Lewis’s audacious attempt to reduce the modal to the non-modal – as the capstone of the reductions implementing his grand naturalistic program -- I note his parallel treatment of temporal modification. What is it for o to have been so-and-so at a past time t

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¹¹ See lectures 2 and 3 of Kripke (1980).

¹² For one such version of the Kripke story see Soames (2007c).

¹³ See, for example, Lewis (1966, 1970c, 1974, 1997).
(where *being so-and-so* is an intrinsic property o now lacks)? As in the modal case, Lewis thinks it must be for some object different from, but related to, o to be both *so-and-so* and located (i.e. existing) at t. Thus, he takes it to be incoherent to suppose that o might itself bear different (intrinsic) properties at different times, in the same way he takes it to be incoherent to suppose that o itself might (without the help of counterparts) bear different such properties at different possible worlds. The chief difference is that the temporal counterpart of o is a time slice of o, while o is itself supposed to be a parade of time slices. By contrast, the modal counterpart of o is an entity on a par with, but non-identical to, o.

As before, this move from mundane semantics to revisionary metaphysics is, I think, unfortunate. The first step in avoiding it is to trade the time-relativized object for the time-indexed property *being so-and-so at t*. But, Lewis rightly objects, that property is relational rather than intrinsic, just as *being so-and-so at w* is. The key to overcoming this objection, is to define the world-state- and time-indexed properties in terms of the intrinsics (rather than vice versa). For o to be *so-and-so at w* is for it be the case that if *w were instantiated, then o would have the property so-and-so*. For o to be *so-and-so at t* (where t is a past time) is for it to have been true when t occurred that *o had the property so-and-so*. Temporal semantics does not, contra Lewis, require time-slices.

Viewing world-states as properties the instantiation of which *would* make various propositions true, Kripkeans don’t take counterfactuals to be *defined* by, or reduced to, conceptually prior world-states. This may seem to flout the orthodox view of counterfactuals in Lewis’s (1973). However, the appearance of heterodoxy is exaggerated; much of Lewis’s influential treatment of the truth conditions of sentences of the form (2) can be accepted.

2. If it had been the case that A, then it would have been the case that B (A □→B)
His idea was that (2) is true at \( w \) iff either there are no A-states (world-states at which A is true), or some A-states at which B is true are more similar to \( w \) than any A-states at which B is false. His semantics differs from one developed independently in Stalnaker (1968) in not validating conditional excluded middle -- \((A \Box \rightarrow B) \vee (A \Box \rightarrow \neg B)\).14

What is it for one world-state to be similar to another? Lewis doesn’t say much about this in *Counterfactuals*, beyond noting that what counts as similarity can vary from one context of utterance to another. Challenged by counter-examples to the analysis when similarity is understood to be *overall similarity* of the world-states,15 he responded in Lewis (1979b) with default rules for determining similarity. Since then there has been much back and forth concerning what relation \( S_C \) is needed to complete the account of counterfactuals. Although there is reason to believe that Lewis originally did think that some kind of qualitative similarity was central to the semantics of counterfactuals (just as it was to his counterpart relation), the subsequent literature, including his own later contributions, make it clear that the fact that \( S_C \) was originally called “similarity” was merely a distraction.

At this point, we do well to reflect again on the grand naturalistic reduction for which Lewis was striving. In addition to *reducing* possible worlds to other universes, it required *reducing* counterfactuals to possible worlds plus similarity. But once simple qualitative similarity went by the boards, there was no real *analysis* on offer, but only the relatively innocuous statement that in order for it to be true (at \( w \)) that *if A were true, then B would be true*, B must be true at those worlds (if any) at which A is true which also bear some further unspecified relation to \( w \). Whatever its merits, this is no definition, analysis, or reduction.

14 If one is worried that some counterfactuals with metaphysically impossible should come out false, while others are really true, the Kripkean may go beyond Lewis by including world-states that are epistemically, but not metaphysically, possible in stating the truth conditionals of counterfactuals. More on such world-states below.
The next stage in the saga – finding the relation $S_C$ needed to complete the “analysis” of counterfactuals – produced both genuine progress and a further threat to Lewis’s grand plan. Recent work – including Jonathan Bennett (2003), Dorothy Edgington (2004), Jonathan Schaffer (2004), and Boris Kment (2006) – suggests that similar facts in $w_1$ and $w_2$ contribute to the worlds being closely related by $S_C$, only if the facts have the same, often causal, explanation in both. Although this extends Lewis’s story, and provides needed content, it also raises a worry. Which, if either, of causation and counterfactual dependence is to be analyzed in terms of the other? According to Lewis (1973b), causation is defined in terms of causal dependence, which is a form of counterfactual dependence. Roughly put, an event $b$ causally depends on a distinct, non-overlapping event $a$ iff if $a$ were to occur, then $b$ would occur (and if $a$ were not to occur, then $b$ would not occur). $A^*$ is a cause of a distinct, non-overlapping event $b^*$ iff $b^*$ is causally dependent on $A^*$, or there is an event $c^*$ which both causes $b^*$ and is causally dependent on $a^*$.

In the decades after this analysis appeared, many objections were raised, leading Lewis to further modifications – the last of which are found in Lewis (2004). But the direction of analysis remained constant; causation is analyzed in terms of counterfactuals. This is threatened by the idea that causal explanation might itself be needed to explain the $S_C$-relation in terms of which counterfactuals are to be “analyzed.” If, as Lewis intended, these analyses are to express conceptual and explanatory priorities, then, either counterfactuals are not analyzable in terms of $S_C$, or $S_C$ is not analyzable in terms of the causal features of worlds, or causation is not analyzable in terms of counterfactuals – or all three. As I write, the jury seems to be out on this. Perhaps, the best strategy is to acknowledge interdependence among these, even though to admit this is to give up the idea of reducing causality to anything involving counterfactuals.

15 See Kit Fine (1975).
Such a loss would be no minor matter. In the context of Lewis’s grand naturalistic reduction, the role of his counterfactual analysis of causation was to solve Hume’s problem by reconciling (i) the way in which our thought and talk of causation is embedded in counterfactual reasoning with (ii) an ultimately Hume-like constant-conjunction analysis of causation -- in terms of spatio-temporal relations among events involving point-sized counterpart time-slices instantiating natural properties across universes.\textsuperscript{16} If, however, there is no such payoff in the offing, then there will be no philosophical treasure to pay the high price of Lewis’s modal realism, and his embrace of counterparts and temporal parts as explanatorily basic.

Earlier, in outlining the structure of his grand naturalistic project, I mentioned the reduction of the mental to the physical. The \textit{locus classicus} for this reduction is Lewis (1980), the precursor of which was Lewis (1966). In both, he self-consciously adopted a version of the contingent identity theory of the relation between mind and body. By 1980, this implicitly involved a counterattack against Kripke’s celebrated attempt to refute such theories. To understand Lewis, it is helpful to understand the Kripkean position it repudiates.

Kripke’s discussion in \textit{Naming and Necessity} focuses on (3) and (4).

3. \textit{Heat} = mean molecular kinetic energy
4. \textit{Pain} = C-fiber stimulation

We here treat the expressions flanking ‘=’ as designating kinds and the statements as ordinary identities. Initially, both (3) and (4) appear to be contingent, if true. However, Kripke argues, with (3) this impression is illusory. Suppose that ‘heat’ and ‘mean molecular kinetic energy’ are rigid designators – i.e. that the state that is heat couldn’t have existed without being heat, and similarly for the state of having such-and-such mean molecular kinetic energy. Then, it is thought, (3) will be necessary, if true. Since it \textit{is} true, it is also necessary.

\textsuperscript{16} See the discussion in Lewis (1986b) e.g. at p. ix.
What, then, is responsible for the illusion that it isn’t? Kripke’s answer focuses on how we identify or “fix the referent of” ‘heat’. Since our primary means of identifying heat is by the sensations it causes, he imagines us using the description ‘the cause of such-and-such sensations’. The illusion that (3) is contingent comes from mistaking this (non-rigid) description for a synonym of ‘heat’, thereby confusing the necessary truth expressed by (3) with the contingent truth expressed by (3*).

3. The cause of such-and-such sensations in us = mean molecular kinetic energy.

One who makes this mistake wrongly takes genuinely possible world-states at which kinetic energy exists without the usual accompanying sensations to be world-states with kinetic energy but no heat. Hence, the illusion of contingency.

Kripke finds (4) to be different. As before, he takes the terms flanking ‘=’ to be rigid, in which case (4) is necessary, if true. However, he argues, there is no way of dismissing the initial impression of contingency. With (3), the impression was (allegedly) caused by our reliance on sensations to detect what causes them. With (4), the sensation itself is what we use ‘pain’ to talk about. We don’t think: What a horrible sensation! Let’s use ‘pain’ to talk about whatever causes it. Instead, we use the word to designate the sensation itself. Thus, whereas one can dispel the illusion that (3) is contingent by appealing to the contingent connection between heat and the sensation by which we recognize it, one can’t dispel the impression of contingency of (4) that way. Since he sees no other way to do so, Kripke concludes that (4) must be contingent, if it is true at all. But, it can’t be contingent, since its terms are rigid. So, he suggests, it isn’t true.

This argument, which fails to distinguish epistemic from metaphysical possibility, is unconvincing. Although Kripke may have identified one source of the impression that (3) is contingent, he neglected another. Imagine a man who doesn’t take ‘heat’ to be synonymous with
any term for our sensations, because he recognizes that heat could exist without us. He might still be under the impression that (3) is contingent because it is conceivable for heat to be something other than the motion of molecules. After all, he may reason, it was an empirical discovery that how hot something is depends on how fast its molecules are moving. Since empirical evidence was needed to rule out possibilities in which this is not so, it must be possible for heat not to be molecular motion. Hence, he may (wrongly) conclude, (3) must be contingent. The same reasoning applies to (4). The error is in confusing epistemic with metaphysical possibility. Once it is corrected, the flaw in the argument becomes obvious. Having dismissed only one of two sources of the impression that (4) is contingent, if true, Kripke is not entitled to his conclusion that it’s not true.17

This objection to Kripke, relying on sharply distinguishing epistemic from metaphysical possibility, would not have appealed to Lewis. For him, contingent theoretical identities involving natural kind terms are unproblematic.18 On his analysis, pain, for an organism x, is the physical state which, in normal members of x’s kind, plays a certain functional role; it is typically caused by injuries, it interferes with one’s activities, and it is something the avoidance of which motivates action. The theory, articulated in Lewis (1980), is designed to accommodate normal pain plus “mad” and “Martian” pain.

**Mad Pain**

“There might be a strange man...whose pain differs greatly from ours...Our pain is typically caused by cuts, burns, pressure, and the like; his is caused by moderate exercise on an empty stomach. Our pain is generally distracting; his turns his mind to mathematics, facilitating concentration on that but distracting him from anything else. Intense pain has no tendency whatever to cause him to groan or writhe... He is not in the least motivated to

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18 To the extent that Kripkean intuitions about rigid designation need to be accommodated, Lewis came (by the 1990s) to see rigidified descriptions plus Chalmers/Jackson style two-dimensionalist analyses as the way to do so. The appeal of this strategy was, as explained in Soames (2005, 2006), to preserve a pre-Kripkean conception of conceptual possibility as the only possibility. For Lewis (and the others) the distinction between epistemic and metaphysical modalities which allows a single proposition to be conceivable though necessarily false is replaced by a system in which a pair of propositions (associated with the same sentence) can receive different modal evaluations.
prevent pain or get rid of it. In short, he feels pain but his pain does not at all occupy the typical causal role of pain.”

Martian Pain
“Also, there might be a Martian...whose pain differs greatly from ours in its physical realization. His hydraulic mind contains nothing like our neurons. Rather, there are varying amounts of fluid in many inflatable cavities, and the inflation of any one of these cavities opens some valves and closes others...When you pinch his skin you cause no firing of C-fibers – he has none – but rather you cause the inflation of many smallish cavities in his feet. When these cavities are inflated, he is in pain. And the effects of his pain are fitting: his thought and activity are disrupted, he groans and writhes, he is strongly motivated to stop you from pinching him...In short, he feels pain but lacks the bodily states that either are pain or else accompany it in us,”

While “Martian pain” is easily imaginable, “mad pain” isn’t. Is it really possible? Here, we must distinguish epistemic from metaphysical possibility. Let’s say that p is epistemically possible iff we can’t know apriori that p isn’t true. Since the connection between neurological states and behavior is aposteriori, it is *epistemically possible* for one to be in the neurological state we are in when feeling pain, while having the madman’s behavior and motivation. It is also epistemically possible to be in that state and not *feel* pain. However, when one adds that the madman *feels pain*, despite lacking normal pain behavior and pain-avoiding motivation, it is natural not only to doubt that *mad pain* is metaphysically possible, but also to question whether it is epistemically so. It is conceivable, and presumably possible, for agents to exhibit *some* behavioral and motivational responses to pain that differ from the norm. But this doesn’t mean that the wholesale difference exhibited by Lewis’s “madman” is either possible or coherently conceivable. By contrast, the epistemic possibility of Martian pain is beyond doubt. As for its metaphysical possibility, caution is in order. While it is very plausible that actual and possible organisms can feel pain despite having physiologies quite different from ours, the limits of these

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20 Ibid., p. 123.
differences are unknown, and likely to fall well short of what we can pretheoretically conceive. Presumably, however, Lewis could accept this.

He disagrees with Kripke about ‘pain’ being a rigid designator. Since most general terms are rigid (whether or not they designate natural kinds), his claim that ‘pain’ isn’t rigid is counterintuitive.\(^{21}\) Could pain have existed without being pain? Could anything other than pain have been that state? Like (5), but unlike (6), the answers to these questions seem to be ‘no’.

5. Could the color blue have existed without being (the color) blue? Could anything other than blue have been that color?

6. Could the color of a cloudless sky at noon have existed without being the color of a cloudless sky at noon? Could anything other than the color of a cloudless sky at noon have been the color of a cloudless sky at noon?

One way out is to take ‘pain’ to be equivalent to ‘the state of an individual that plays such-and-such functional role’. To do so is to lose the madman while gaining rigidity – whether or not different physical states realize pain states (at different times/worlds). True, one loses something, since pain may no longer be identified with any one physical-state type among all those that may realize it. True also, Lewis would have regarded this as insufficient for his ambitious naturalistic reduction. By now, however, it is not clear that this is a serious worry.\(^{22}\)

\(^{21}\) For discussion of the rigidity of general terms see Soames (2007c).

\(^{22}\) It is important to distinguish the question whether ‘pain’ is a rigid designator from the question whether being a pain is an essential property of anything that has it. Although Kripke seems to run them together in his discussion of pain in Naming and Necessity (pp 148-9), they are distinct. (See Soames 2006 pp. 181-2, and 2002, pp. 252-3.) Having dealt with the rigidity issue, we may wonder whether, as Kripke thinks, being a pain is an essential property of anything that has it. Consider, the intense headache I had last night. Could it have existed without being a pain? It’s mildly bizarre to suppose it could – while being pleasurable or unfelt. Lewis seems to allow both. Suppose at w, I exist with all my C-fibers, but my brain has been altered by the addition of genetically designed D-fibers that make the C-fiber stimulation pleasurable. At w, the same C-fibers fire that constituted my headache at @, while being experienced as a pleasurable tickling. It seems, on Lewis’s account, that the thing which is my headache at @ also exists at w. Is it a pain? If others of my kind haven’t had the benefit of the procedure, Lewis’s theory will count me as feeling mad pain, even though it is enjoyable. That seems wrong. Suppose I am the only one of my kind at w, or that all the others have new D-fibers too. In both cases, my headache, which for Lewis is identical with a certain firing of C-fibers, exists and is not a pain, but rather is a pleasurable sensation. Not, I think, a convincing counter-example to Kripke’s essentiality thesis. By contrast, the example causes no problem for our final, purely functionalist reformulation of Lewis, since on this analysis the pain-state is realized by, but not identified with, the C-fiber firing.
Reviewing my discussion of the core components of Lewis’s grand naturalistic reduction – of the mental to the physical, of causation to counterfactuals, of counterfactuals to the similarity relation on worlds, and of worlds to existing physical universes – I have found them all to fall short. They are not genuine reductions of one class of things to another. Nevertheless, all but the last (the modal to the non-modal) contained much of value that moved the discussion of the issues with which they were concerned forward. Even the grand reductive attempt was not without value, being the first real effort by a leading figure of analytic philosophy to construct a comprehensive view of the whole of reality since Russell (1918) and Carnap (1928).\(^{23}\)

Because metaphysics was the center of Lewis’s philosophy, this mixed verdict is not a happy one for such a gifted thinker. There were, however, other projects to which he contributed much more successfully. His first book, *Convention*, made an important contribution to the study of equilibriums arising as solutions to certain kinds of coordination problems and multi-agent games. His work on conditional probability and its distinctness from the probability of any conditional sentence, in Lewis (1976), was path breaking.\(^{24}\) He was also one of the leading contributors to the grand project to which many analytic philosophers have devoted themselves – moving the study of language, information, and cognition from unsystematic philosophical speculations to a (still future) stage in which solid and comprehensive frameworks for genuine scientific investigation are in place. It is to this broad project that I now turn.

\(^{23}\) Russell’s system is examined in detail in chapter 12 of volume 1 of Soames (forthcoming). I don’t put the metaphysical system of the *Tractatus* in the same category because of its subservience to the larger themes of the work, which were devoted to turning philosophy away from genuine metaphysics.

\(^{24}\) In addition to establishing this result, the article also offers an analysis of indicative conditionals on which [If A, then B] has the truth conditions of a material conditional, while having assertability conditions requiring the conditional probability B given A to be high. In the postscript, Lewis (1986c), he gives up the details of this view, in favor of a related account given in Frank Jackson (1979, 1981).
Lewis’s (1970b) was one of the cutting-edge texts of its time – along with work by Richard Montague, David Kaplan, and Robert Stalnaker. Together, they laid out a powerful framework for the use of intensional logic in semantic theories of natural language. In his paper, Lewis used a categorial grammar to generate deep structures, mappable onto surface structures by Chomsky-like transformations (in a manner then being investigated by his colleague Barbara Partee at UCLA). Deep structures were interpreted by a version of Montague’s one-semantic-rule-for-each-syntactic-rule approach. The resulting system assigned intensions (functions from indices to truth values) to sentences. Although his system was both powerful and fruitful, it was also resolutely intensional, with no room for hyperintensional operators. In keeping with the assumptions of the time, propositions were identified with intensions of sentences – which, for our purposes, we may take to be functions from “worlds” to truth values, or, more simply, sets of “worlds.” Though many today still adhere to this approach, others have come to see it as incorporating limitations that Lewis never transcended, as demonstrated by his discussion and individuation of propositions in such late works as Lewis (1996).

Historically, the three main attempts to deal with hyperintensionality in intensional semantics have been (i) to substitute finer-grained circumstances for worlds-states, (ii) to distinguish the proposition semantically expressed by S from what one asserts by uttering S, and (iii) to adopt a 2D semantic theory which associates pairs of coarse-grained propositions with sentences. The high-water mark for (i) (never favored by Lewis) was the system of situation semantics developed Barwise and Perry (1983). It failed because the hyperintensionality problem

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25The demonstration, in Hans Kamp (1971), that times and worlds must be double-indexed had not been widely recognized. David Kaplan’s reconceptualization (including his distinction between character and content) was also not yet in place. The indices in Lewis (1970b) each consisted of a single time, place, world, and assignment of objects to variables. In Lewis (1980b, 1983b) he noted the work of Kamp, Stalnaker, and Kaplan, and recognized various ways in which his original parameters might be enriched.
is reconstructable for all theories of propositions as sets of truth-supporting circumstances (satisfying certain minimal assumptions). The high-water mark for (ii), pioneered by Stalnaker (1978) and endorsed by Lewis, identified propositions with sets of metaphysically possible world-states, while combining the distinction between semantic and assertive content with a 2D strategy of “diagonalization” to breathe informativeness into utterances of sentences that express necessary consequences of propositions already in the context. It fails for various reasons, including its inability to accommodate attitudes to singular propositions that predicate essential properties of things. The high-water mark for (iii) is a semantic view, suggested by David Chalmers (1996) and Frank Jackson (1998), called “strong two-dimensionalism” in Soames (2005).” The basic idea is that sentences express propositions dubbed “primary” and “secondary” intensions, the former being the arguments of hyperintensional operators and the latter the arguments of modal operators. Since the primary intension of S says, roughly, that S’s Kaplanian character expresses a truth, primary and secondary intensions diverge when S contains indexicals or indexically rigidified descriptions (which names and natural kind terms are taken to be). The chief technical problem is that strong 2D can’t account for sentences containing both modal and

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27 See Soames (2006b) and chapter 3 of King, Soames, and Speaks (forthcoming).

28 In Lewis (1997), we are given the following account of the descriptions to be rigidified in the case of names.

   “Did not Kripke and his allies refute the description theory of reference, at least for names of people and places?...I disagree. What was well and truly refuted was a version of descriptivism in which the descriptive senses were supposed to be a matter of famous deeds and other distinctive peculiarities. A better version survives the attack: causal descriptivism. The descriptive sense associated with a name might for instance be ‘the place I have heard of under the name ’Toromeo’’ or maybe ‘the causal source of this token: Toromeo’, and for the account of the relation being invoked here, just consult the writings of causal theorists of reference.” (p. 332, ft. 22, of Lewis (1999).

The final clause of this passage is problematic. There is no precise theory of how the referent of one’s use of a name is inherited from other uses. Since it is inherited, the description ‘the referent of the uses from which my use of ‘Toromeo’ somehow inherits its reference’ picks out the right object, but can’t, on pain of circularity, be what determines my referent. The problem for causal descriptivism is that speakers have no other, non-circular, descriptive means of fixing reference. For more on this and related problems with attempts to fix the referents of names descriptively see my reply to Jackson in Soames (2007b).
hyperintensional operators, one embedded under the other. Rescue attempts that appeal to weaker versions of 2D semantics suffer from similar shortcomings.\(^{29}\)

Though Lewis didn’t himself pioneer this failed approach, he did embrace it.\(^{30}\) Moreover, the problems with propositions as sets of “possible worlds” are not limited to coarse-grained nature of the latter. It is crucial to any account of propositions that, as bearers of truth conditions, they represent the universe as being certain ways (without requiring interpretation by us). No set is inherently representational in this way. What does the set containing “worlds” 1, 2, and 3 represent? Is it true or false? These questions make no sense. If we wanted, we could use the set to represent the “actual world” as being in the set – and so to make the claim that no “world” outside the set is actual. But we could equally use it to represent the “actual world” as not being in the set – and so to make the claim that no “world” inside the set is actual. Independent of interpretation by us, the set doesn’t represent anything, and so has no truth conditions.\(^{31}\)

This brings me to the necessary aposteriori, where several fault lines dividing Lewis and Kripke meet.\(^{32}\) No theory identifying necessarily equivalent propositions can distinguish necessary propositions that are knowable apriori from those that aren’t. If I am right, there is also no acceptable 2D-reanalysis of Kripke’s data supporting the necessary aposteriori. Lewis’s treatment of metaphysically possible worlds as concrete universes rather than maximal properties exacerbates the problem. The latter simply generalizes to the universe the platitude

\(^{29}\) See Soames (2005).

\(^{30}\) Throughout the 1999-2000 academic year David and I jointly taught a graduate seminar on Naming and Necessity and its aftermath. In it, he identified propositions with sets of worlds, and used diagonalization plus a Jackson/Chalmers like distinction between primary and secondary intension to deal with attitude ascriptions.

\(^{31}\) The function that assigns “worlds” 1-3 truth, and all others falsity, isn’t intentional either. What, after all, are truth and falsity but properties we grasp primarily through their application to propositions? But surely, if propositions are needed to illuminate truth and falsity, they can’t be among the building blocks for constructing propositions. See chapters 3, 6 of King, Soames, and Speaks (forthcoming).

that some things could have had properties they don’t have. The further platitude that sometimes a property something couldn’t have had can be known not to be had by it only by appeal to empirical evidence, allows a further extension. In addition to including maximal properties the universe could have had but doesn’t (metaphysically possible world-states), the analysis can accommodate those the universe couldn’t have had, but can’t be known apriori not to have (metaphysically impossible but epistemically possible world-states). With such states, the function of evidence needed to know an empirical proposition p can be just what Lewis (1996) says it is – namely, to rule out relevant possibilities in which p is false – even when there are no metaphysical possibilities to rule out because p is necessary. By contrast, when one thinks of possible worlds as concrete universes (that exist but don’t “actually exist”) the idea of metaphysically impossible, but epistemically possible, worlds will, wrongly, seem incoherent.

Mention of actuality highlights another problem with modal realism. Most philosophers agree that \[\text{Actually } S\] is necessarily true when S is contingently true. Less widely recognized is the fact that assertively uttering either sentence typically commits one to the propositions expressed by both. Lewis’s counterpart theory prevents him from recognizing these things. Although Hubert Humphrey’s counterpart, HH, exists and is so-and-so, according to Lewis he doesn’t actually exist and is not actually so-and-so (because he doesn’t exist and is not so-and-so in our universe). The right result – that anything that exists and is so-and-so, actually exists and

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34 The semantics of ‘actual’ is discussed in Lewis (1970). Although the analysis there is called “indexical,” it doesn’t take into account the then unrecognized need for double indexing of times and worlds. Because of this, only one of the two meanings he assigns to ‘is actual’ (and to ‘the actual world’) is genuinely indexical – the reading on which ‘is actual’ is true of a world iff it is identical with the world of the context (assuming double indexing). The other, non-indexical, reading is one in which ‘is actual’ is true (relative to a context and a circumstance of evaluation) of a world w iff w is the world of the circumstance. The obvious truths that Lewis is forced to deny are those involving the genuine indexical reading. He is forced to deny them by the basic tenet of modal realism that for Hubert to possibly exist, or be so-and-so, is for an inhabitant HH, of a merely possible world, to exist, or be so-and-so. That is the key mistake; adopting an approximately correct indexical semantics for ‘actual’ merely helps reveal it.
actually is so-and-so -- is readily explainable when ‘Actually’ is taken to indexically refer to the
world-state of the context, and [Actually S] is seen as equivalent to [At this very world-state S]35

As I have emphasized, Lewis was a systematic philosopher. Sometimes I wish he weren’t
quite so. One of his most influential papers, Lewis (1979), contains insights that must be
separated from the modal realism that deeply informs it. The insights concern a problem about
“first-person” (de se) attitudes previously raised and addressed in Hector-Neri Castaneda (1966,
1968) and John Perry (1977, 1979). Here is Lewis’s statement of the problem.

“Consider…two gods. They...know every proposition that is true at their world...Still...
[n]either one knows which of the two he is...One lives on top of the tallest mountain, and
throws down manna; the other lives on top of the coldest mountain and throws down
thunderbolts. Neither one knows whether he lives on the tallest mountain or on the coldest
mountain, nor whether he throws manna or thunderbolts. Surely their predicament is possible.
(The trouble might perhaps be that they have an equally perfect view of every part of their
world, and hence cannot identify the perspectives from which they view it.) But if it is possible
to lack knowledge and not lack any propositional knowledge, then the lacked knowledge must
not be propositional. If the gods came to know which was which, they would know more than
they do. But they wouldn’t know more propositions...Rather...[o]ne... would correctly self-
ascribe the property of living on the tallest mountain.” (139, my emphasis)

The gods know that the manna-thrower lives on the tallest mountain, and the thunderbolt-thrower
lives on the coldest mountain. Each also knows, of the manna-thrower M, that he lives on the
tallest mountain – i.e. each knows the singular proposition expressed by ‘x lives on the tallest
mountain’ relative to an assignment of M to ‘x’. The same is true of the singular proposition
expressed by ‘x lives on the coldest mountain’ relative to an assignment of the other god, T, to
‘x’. Nevertheless, they do seem to lack knowledge. If M or T were to say “I don’t know whether
I live on the tallest/coldest mountain” we would judge him to have spoken truly. This suggests
there are some things they don’t know. Since there are no propositions they don’t know, Lewis
concludes that not all knowledge is propositional; sometimes what is known is a property that

35 See Soames (2007), and chapter 6 of (2010).
one could correctly self-ascribe. The main alternative at the time was Perry’s, according to which the gods already know all there is to know; they simply fail to recognize certain known propositions when presented to them in a first-person way. I believe Lewis is closer to the truth.

Still, there are challenges to be met. The first is illustrated by Perry’s (1977) example of the amnesiac Lingens, who is trapped in the Stanford library reading a fact-filled biography of Lingens that includes a description of his predicament. Although Lingens believes, and even knows, all the propositions learned from reading, we naturally describe him as “not knowing that he is Lingens,” and “not knowing that he is trapped in the Stanford Library.” Which propositions are these? Not the propositions that Lingens is Lingens and that Lingens is trapped in the Stanford Library. Everyone who has heard of Lingens knows the former, and Lingens himself knows the latter because the book told him. Despite this, Lewis maintains, Lingens is in no position to self-ascribe being Lingens and being in the Stanford library. So far, so good. Now consider an extension in which Lingens looks in the mirror and says “That’s me!,” self-ascribing being him (demonstrating himself). Since this is the property being Lingens, it seems we should conclude that Lingens now knows that he is Lingens. But we wouldn’t naturally say that. Is Lewis’s account therefore incorrect, or unmotivated, because it allows us to recreate a version of the very problem it was designed to solve? Perhaps, but I doubt it. Since Frege’s puzzle has been laid on top of the de se puzzle, getting the right result involves combining what is needed for both – Lewis’s self-ascription plus, e.g., Perry’s, or Salmon’s, ways of believing/ascribing.

The next challenge is similar, except that the property self-ascribed in necessarily empty. In this case, adapted from (Perry 1979), Perry is shopping in the supermarket, when he looks up at two differently placed security mirrors and says to himself “I am nearer to him [demonstrating

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the man seen in mirror 1] than I am to him [demonstrating the man seen in mirror 2].” Since he is the man seen in both mirrors, he thereby self-ascribes being nearer to Perry than to Perry. Because this property is necessarily empty, self-ascription of it will, for Lewis, result in believing the impossible, which, for him, is itself impossible.\footnote{For Lewis, when S is necessarily false, \([A\ believes\ that\ S]\) is necessarily equivalent to \([A\ believes\ that\ S & P]\) for every P. Since ‘believe’ distributes over conjunction, the truth of the former guarantees the truth of \([A\ believes\ that\ P]\) for every P. Since it is impossible for any agent to simultaneously believe everything (and its negation), it must be impossible for \([A\ believes\ that\ S]\) to be true when S is necessarily false.} Since this is wrong, salvaging the Lewisian de se requires embracing hyperintensionalism. Not surprising.

Next notice that John and Mary express different beliefs by sincerely uttering “I am hungry” -- despite the fact that they self-ascribe the same property. How does this fit the idea that de se belief is the self-ascription of properties? Pretty well, if we add that an agent x who self-ascribes P, also counts as ascribing P of x (but not conversely). Whereas both involve predicking P of x, the former requires thinking of the predication target in the first-person way (whatever that amounts to), while that latter doesn’t. It will then follow that, in addition to their identical de se beliefs, John and Mary also have different de re beliefs. (I will return to the question of whether they really do also express identical beliefs.)

The same idea allows us to recognize that Lingens and his friend Lola express the same (de re) belief when Lingens sincerely says, “this book is about me,” and Lola, agrees, saying “That book is about you.” A state of de se believing something is always also a state of de re believing something closely related. Innocent enough, this idea worsens the problems posed by Lewis’s anti-hyperintensionalism – making it impossible for Lingens, prior his epiphany, to coherently take himself not to be Lingens. Since doing that would involve both self-ascribing not being Lingens and believing the necessary falsehood that Lingens is not Lingens, Lewis must, by the assumptions in the previous footnote, (wrongly) disallow the possibility that Lingens might
wrongly believe *that he isn’t Lingens*. To avoid this, hyperintensionality must (again) be embraced.

So far, I have written as if Lewis took the objects of *de se* beliefs to be properties and the objects of other beliefs to be propositions. He didn’t. Rightly wanting a unified analysis, and judging propositions not to be objects of *de se* beliefs, he took properties to be the objects of all beliefs. On this view, to believe that the earth moves is to self-ascribe *being such that the earth moves* (a property everything has). This is artificial at best, and problematic at worst. For one thing, Lewisian properties aren’t true or false; for another, agents who self-ascribe *being hungry* don’t thereby express identical beliefs. To me, this suggests the need for new conception of propositions that explains how genuine *de se* propositions (the entertaining of which require Lewisian self-ascription) can be distinct from, but representationally identical with, corresponding *de re* propositions. Elsewhere, I argue for such a conception, which preserves the virtues of Lewis’s solution without its drawbacks.38

Another brilliant and highly influential paper is Lewis (1975b). Marrying Lewis (1970b, and 1969), it reconciles two ways of thinking about language. According to one, languages are sets of well-formed, interpreted, expressions; according to the other they are social practices. As Lewis persuasively argues, both perspectives are needed. By distinguishing the question *What is a language?* -- an abstract object with semantic properties -- from the question *What facts are necessary and sufficient for a population to speak it?*, he puts the two perspectives into a single frame. In the simplest case (ignoring ambiguity and indexicality, and considering only declarative sentences) he takes a language L to be a set of well-formed sentences paired with their meanings – which are sets of worlds at which they are true. (Meanings of constituents of

38 See chapter 6 of King, Soames, and Speaks (forthcoming),
sentences are not part of the specification because Lewis shared Quine’s worries about referential indeterminacy.) For L to be used by a population P is for a convention of truthfulness and trust in L to exist in P. To be truthful in L is, to a first approximation, to assertively utter a sentence S of L only when one believes S to be true in L. To be trusting in L is, roughly, to be disposed to believe that others in P are truthful in L, and so will assertively utter S only if they believe S to be true in L. From this it follows that the trusting hearer will be disposed to believe that S is true in L, to the extent she has reason to believe that speaker knows what he is talking about. Finally, to say that there is a convention of truthfulness and trust in L is to say, very roughly, (i) that there is a regularity of such among members of P, (ii) that members of P realize this, (iii) that the expectation that others conform to the regularity give one a good reason to conform, (iv) that there is a general preference, given that most conform, for all (including oneself) to conform, and (v) that members of P could, in theory, satisfy their interests in communication by conforming to an alternative regularity of truthfulness and trust in a different language.

These are, of course, just the bare bones of Lewis’s theory, without his many complex elaborations. It is, however, enough to raise two questions.

Q1 Is it essential that something like his regularities be conventions?

Q2 Does the framework require individuating meanings/propositions so coarsely, or it is compatible with a genuinely hyperintensional conception of both?

First Q1. Conditions (iii) and (iv) are crucial to Lewis’s analysis of convention and to his view that the solution to the coordination problem provided by linguistic conventions gives members of P good practical and epistemic reasons for action and belief. In what sense does a regularity of truthfulness and trust in L provide each speaker with such reasons? Let’s grant that speaker x has an abiding interest in communication and in the conformity of others to the policy of being
truthful and trusting in L. Presumably, the fact that they do conform gives x a good reason to trust that they do. Does it also give x a good reason to be truthful in L? Although it may give x a moral reason, this is not the type of reason Lewis emphasizes, any more than the fact that there is a moral reason – to avoid injuring or inconveniencing others – to conform (when driving in the U.S.) to the regularity of driving on the right-hand side of the road is the main sort of interest served by the convention of driving on the right. In the driving case, anyone interested in getting safely and swiftly from point A to point B has reason to conform, independent of a concern for others. Although the issue is delicate in the linguistic case, it would seem that Lewis needs a similarly compelling reason that comes from x’s interest in communication. Is there such a reason for x to speak truly in L? Pending an answer to this question, it is not easy to say whether conditions (iii) and (iv) of Lewis’s definition of a convention are met.

The answer to Q2 is more direct. Substituting hyperintensional propositions for Lewis’s intensional ones strengthens the analysis. Suppose, what I take to be obvious, that necessarily equivalent sentences may differ both in meaning and in the beliefs they are used to express. It follows naturally that L and L* may differ in the hyperintensional propositions they assign to the same sentences, even though the truth conditions of sentences resulting from those assignments are necessarily equivalent. This in turn requires an adjustment in the statement of the convention of truthfulness and trust. We now say (again very roughly): to be truthful in L is to assertively utter a sentence S of L only when believes the proposition S expresses in L, and to be trusting in L is to be disposed to believe that other members of P are truthful in L too. With this modest reformulation, none of the attractiveness of Lewis’s guiding idea is lost.

39 See pp. 184-5 in Lewis (1983) for his interesting and nuanced discussion of this issue.
Lewis (1979c) is a similarly brilliant and even more influential discussion of the nuanced relationship between meaning, context, and assertion. The article develops two leading ideas. First, various linguistic items and constructions place requirements on contexts in which sentences containing them can acceptably be uttered – requirements regarding what must be assumed or presupposed by conversational participants prior to the utterance, what is taken by them to be under discussion, what possibilities are relevant for conversational exploration, the standards of precision governing the discussion of certain topics and the uses of certain words, the objects most saliently available for conversational reference, and the like. Second, when an utterance requires some aspect of the context to meet one of these requirements which is not, in fact, met prior to the utterance, there is a general, though defeasible, presumption that the conversational participants will accommodate the speaker by updating the context so as to bring it into line with what the speaker’s remark requires (if doing so is unobjectionable and doesn’t involve violating their other commitments). Lewis applies this idea with considerable effect to presuppositions, uses of singular definite descriptions, uses of pronouns seemingly (but not really) anaphoric on prior uses of quantifiers, the reference points of narratives, uses of vague predicates, the choice of different and varying modal domains for terms like ‘can’ and ‘must’, the choice of relevant alternatives that must be ruled out to verify claims to know a proposition to be true, the use of language in developing complex plans, and the use of explicit performatives that are verified (made true by) that very use.\textsuperscript{40} The influence of this article in epistemology, philosophy of language, and linguistic semantics can hardly be overestimated.

\textsuperscript{40} Lewis acknowledges Stalnaker (1973, 1974) on presupposition, Kratzer (1977) on relative modality, and Lemmon (1962) on performatives. According to Lemmon and Lewis, declarative sentences like ‘I promise to arrive on time’ and ‘I order you to leave’ are used to express propositions that are made true by asserting them (in the right circumstances). To assert them in such circumstances is to perform the speech acts of promising and ordering. In addition to further elaborating these and other analyses, Lewis is responsible for bringing them together under the common head of accommodation.
Lewis was, of course, the author of many more influential articles in the philosophy of language. A final one that must be mentioned is Lewis (1975). In it, he argues that sentence adverbs such as ‘always’, ‘usually’, ‘often’, sometimes’, and ‘never’ are unselective quantifiers that bind all free variables in their scope. For example, in ‘Usually (x likes y iff y likes x)’ ‘usually’ binds occurrences of both ‘x’ and ‘y’, so the sentence is true iff for most pairs of people the first likes the second iff the second likes the first. In addition to being attractive, this analysis has also been extremely influential in the literature in linguistic semantics. For example, as noted in Richard Holton (2003), it is cited in Irene Heim (1990) as providing important inspiration for Discourse Representation Theory.

In sum, despite what I judge to be the less than successful outcome of David’s overarching metaphysical project, there can be no scanting his many large and lasting contributions to a variety of areas, including, but not restricted to, philosophical logic, the philosophy of language, and linguistic semantics. Nor was his influence limited to the dazzling corpus of his published work. For thirty years he was, during the era of its greatness, a pillar of Princeton philosophy department. A cooperative and influential colleague, as well as a dedicated and conscientious teacher, his impact on the PhD program there was profound. Always one of the chief draws in recruiting graduate students and one of the strongest influences on their education, he was, for nine years, a model Director of Graduate Studies. His dissertation students are spread far and wide across the profession, and his personal influence on individual philosophers in the United States, “down under,” and throughout the English-speaking world (and beyond) was simply unmatched during his far too short a time on Earth.41

41 Thanks to Ali Kazmi for very helpful comments on this paper.
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