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The originality of Saul Kripke

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Paul W. Humphreys and
James H. Fetzer, editors

THE NEW THEORY OF REFERENCE

Kripke, Marcus and its origins
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Picasso might have become a carpenter, or lost an arm. Hitler might have invaded the Soviet Union a month earlier, dramatically altering the course of history. The capacity to contemplate and compare hypothetical or counterfactual scenarios is a remarkable trait of our mental life, one separating us from the rest of the natural world as much as the capacity to express ourselves in language – the two are not unconnected. Imagination, ambition, remorse, fear, lust and much else thrive on this trait.

Not everything is possible. I could have been a prime minister, but not a prime number, or a minefield. Could I have been a horse, a woman, or two years older? If it is part of the human condition to contemplate possibilities, then it is natural for philosophy to examine talk about *what might have been*, to examine the use of modal words ("might", "must", "possible", "necessary"). Philosophers often discuss possibility and necessity in terms of "possible worlds", or ways the universe could have been. The way the universe is is one possible world, the so-called *actual world*. A statement is *necessary* just in case it is true in every world (eg " $2 + 2 = 4$ ") and *contingent* just in case it is true in the actual world but not in every world (eg "Picasso was a painter"). Correspondingly, a statement is *possible* just in case it is true in at least one world (eg "Picasso was a doctor").

In 1946–7, Rudolf Carnap honed such ideas drawing on a narrow conception of necessity driving modern logic. Logic aims to specify when the truth of one statement implies the truth of another, and when a statement is tautologically true (eg "Picasso painted or did not paint"). When tautological, a statement is said to be logically necessary. Necessity and possibility are interdefinable: a statement is logically possible if its negation is not logically necessary. Standard logic underperforms with sentences that themselves contain "necessary", "possible", or other modal words. Richer systems of modal logic were fully axiomatized in papers published by Carnap and by Ruth Barcan Marcus in 1946.

Modal logic came to fruition in the late 1950s when the mathematics of possible worlds was clarified by several young logicians. The youngest was Saul Kripke, a high-school student in Nebraska, who obtained his first results when he was fifteen years old. In 1959, as an eighteen-year-old undergraduate at Harvard, he published a "completeness" proof for modal logic, and further results which he obtained in the early 1960s cemented his reputation as one of the most brilliant and inventive mathematical logicians of the century. By 1964, he was working on philosophical issues raised by necessity, names, identity, essence and substance, but no definitive statement of his views existed until January 1970, when three lectures he gave at Princeton (without a text or notes) were taped and transcribed. In 1972, the transcript was published as "Naming and Necessity".

Kripke's lectures rocked philosophy. They were chatty, easy to follow, and contained little that was technical. Yet they brimmed with rigorous arguments for exciting conclusions: the fundamental notion of possibility is *metaphysical*, not logical; certain statements are necessary, yet known to be true only by empirical methods (rather than a priori reflection); identities discovered by science are necessary; objects and substances may have essential attributes; organisms have essential origins; mental states are not physical states. Underpinning these claims were powerful linguistic theses, about the meanings of names of individuals ("Picasso"), substances ("gold") and natural phenomena ("heat"), and about how names succeed in referring. Kripke demolished the dominant view, due to Bertrand Russell, that names are understood in terms of *definite descriptions*

of the form "the so-and-so" and proposed a powerful alternative.

By the late 1970s, hundreds of publications had been spawned by Kripke's work, and in 1977 the *New York Times* had published a feature article about him in its Sunday magazine, which sported his face on its cover. In 1980, *Naming and Necessity* appeared as a book. The text was left virtually untouched, but Kripke added an illuminating preface in which he outlined the origins of his ideas.

Given the fruits of Kripke's interlocking theses and their relation to his precocious technical accomplishments, the matter of whether any isolated thesis originated with him was of little interest. This changed, in December 1994, at an explosive meeting of the American Philosophical Association in Boston. Quentin Smith, a relatively obscure philosophy teacher in the American Midwest, claimed that Kripke's main contributions to the "New Theory of Reference" derived mostly from a paper Ruth Marcus had delivered at the Harvard Faculty Club in 1962, and, to a lesser extent, from her earlier technical work. Smith also claimed that Kripke, who had attended Marcus's 1962 talk and participated in a discussion afterwards, had misunderstood some of her ideas at the time but, none the less, had unwittingly absorbed enough to regurgitate them as his own at Princeton in 1970.

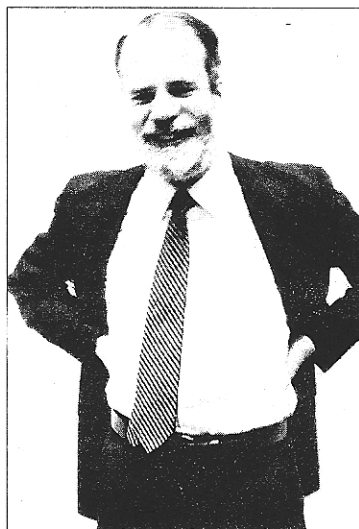
Smith's charges seemed bizarre. First, Marcus's 1962 paper was well known. It was published in the journal *Synthese* in 1962, in colloquium proceedings in 1963, in popular collections in 1967 and 1974 (with changes), and in Marcus's own book *Modalities* in 1993 (again, with changes). An edited transcript of the discussion that followed Marcus's talk also appeared in the same 1962, 1963 and 1993 volumes. Furthermore, Kripke had explicitly rejected one of Marcus's main ideas.

Neither Kripke nor Marcus attended Smith's talk. The respondent was Scott Soames. He was known to be a stickler for accuracy and rigour, and a friend of both Kripke and Marcus, so an exacting but impartial response seemed assured. After highlighting Marcus's professional accomplishments, Soames gave point-by-point rebuttals of Smith's charges, accusing him of grotesque distortion and incompetent scholarship, before implicitly accusing the APA programme committee of negligence or bad faith. Following a long and equally aggressive rejoinder by Smith, Soames asked why, if Kripke's ideas were due to Marcus, had no one noticed for over twenty years? "Maybe that's a question women philosophers should be asking the profession!" someone chimed from the floor. The following year, Elizabeth Anscombe and other eminent philosophers published a letter in the APA proceedings, stating that a session at the national meeting "is not the proper forum in which to level ethical accusations against a member of our profession" and

demanding that the APA publicly apologize to Kripke. A baffling reply from the Association fell well short of an apology.

Smith's original paper, Soames's response and Smith's rejoinder constitute Part One of *The New Theory of Reference: Kripke, Marcus and its origins*. Parts Two and Three comprise further papers by Soames and Smith, two by John Burgess, an excerpt from Dagfinn Føllesdal's doctoral thesis (Harvard, 1961), and a piece by Sten Lindström evaluating part of Stig Kanger's doctoral thesis (Stockholm, 1957). Numerous points turn on passages of Marcus's 1962 talk and the ensuing discussion, but neither is reprinted here. In their introduction, the editors, Paul W. Humphreys and James H. Fetzer, announce the discovery of a recording of the discussion and the completion of a verbatim transcript that differs from the one published previously. Kripke wants the verbatim transcript published, but Marcus has threatened legal action and hitherto blocked publication.

Burgess and Soames see Smith's first two papers as shameful, and rebuke him for tampering with quotations (removing and inserting



Saul Kripke, Oxford, 1990; from Steve Pike's *Philosophers* (Cornerhouse)

key words without comment), disingenuous ellipsis and simplification, obfuscation, the misleading use of dates, disgraceful insinuation, uncritical and selective appeals to personal recollection, and, perhaps most importantly, an attitude towards the evolution of ideas that no historian could take seriously. Smith claims that Soames and Burgess are involved in a "feud" or "vendetta" against him – or at least claims that "several people" (unnamed) see matters this way. The stated objective of his original paper was to give proper credit to Marcus, any damage to Kripke being seemingly collateral; but in his subsequent papers, Smith's plaint seems to metamorphose into a desperate attempt to salvage his charges by discrediting Soames and Burgess – even if it means collaterally damaging Marcus – and showing that *further* ideas attributed to Kripke by the "standard history" of the subject were, in fact, obtained in some other way from other philosophers.

Naming and Necessity is widely seen as one of the finest pieces of twentieth-century philo-

sophy. The absence of logical notation or other formalism barely detracts from its rigour – philosophical formalisms are, after all, just shorthand purged of ambiguity. About the only technical notion Kripke uses is *rigidity*: names in sentences used to talk about individuals in the *actual world* do not alter their references in sentences used to talk about *counterfactual* worlds; they refer *rigidly*, as Kripke puts it. For example, in the modal sentence "(1) Amelia Earhart might have become a doctor" the name "Amelia Earhart" refers to the same individual it refers to in the non-modal sentence, "(2) Amelia Earhart became a pilot."

If they did not refer rigidly, we could not use names of individuals in the actual world to talk straightforwardly about those *same* individuals in other worlds; but we *do*, for example, when we use sentence (1) – which modal logic analyses in terms of what Earhart *did* in some other world. In short, "Amelia Earhart" refers *rigidly* to Amelia Earhart. By contrast, the definite description "the first woman to fly the Atlantic" does not – different women satisfy that description in different worlds. (To say that "Amelia Earhart" refers to the same individual in every world is to say nothing about how that expression is used by speakers in other worlds.)

The importance of the notion of rigidity was not properly appreciated until the 1960s. As an undergraduate at Harvard, Kripke met Føllesdal, who was writing a doctoral thesis on modal logic under the supervision of W. V. Quine. According to Quine, modal logic was ultimately bankrupt, because it violated a basic principle of respectable logic: "What's in a name? That which we call a rose, by any other name would smell as sweet; So Romeo would, were he not Romeo call'd, Retain the dear perfection which he owes Without that title."

In logic, Juliet's point becomes the Principle of Substitutivity: the truth (or falsity) of a sentence about X *must not* depend on what X is named, on how X is specified in that sentence. Venus, whether we call it "Venus", "Morning Star", or "Evening Star", is the planet between Earth and Mercury, and it would take more than linguistic stipulation to change *that* fact. The Principle of Substitutivity says that swapping names of the same object preserves truth. The non-modal sentences (3) and (4) are either both true or both false: (3) Morning Star = Morning Star (4) Morning Star = Evening Star. But the modal sentences (5) and (6) appear to violate Substitutivity: (5) Necessarily, Morning Star = Morning Star; (6) Necessarily, Morning Star = Evening Star. (5) is true because *every* statement "A = A" is logically true (ie logically necessary). (6) is false because *no* statement "A = B" is logically true ("A" and "B" are distinct names, possibly of the same object). From Substitutivity failures in modal sentences, Quine drew paradoxical consequences for the modal systems of Carnap and Marcus.

Føllesdal and Kripke were confident that Quine's objections could be overcome, and they gravitated towards a common position on how the analogues of names worked in modal systems. In his technical work, Kripke had already treated variables – the analogues of cross-referential pronouns – as referring rigidly (although he did not introduce the label "rigid" until 1970). Føllesdal argued in his dissertation that "genuine names" in modal logic must also be rigid. By this criterion, "Venus" is a genuine name, but "the planet between Earth and Mercury" is not. The relevant part of Føllesdal's thesis is reprinted in *The New Theory of Reference*. Føllesdal and Kripke attended Marcus's talk at the Harvard Faculty Club in 1962. Both participated in the discussion that followed, but neither mentioned the rigidity assumptions already in their own work. In 1963, Kripke introduced a new conception of possible worlds and

an accompanying semantics that quickly became the industry standard. The development of Kripke's semantics and its relation to the semantics of Hintikka, Kanger and Montague are discussed fruitfully in Lindström's paper.

By 1964, Kripke had turned to underlying philosophical issues about language and modality. He came to see that the pristine, artificial languages of logic had blinded philosophers to important facts about natural languages like English, Swahili and so on. First, the austere notion of necessity inherited from Carnap and Marcus could not do justice to talk about possibility. Second, once a metaphysical conception of necessity was assumed, any stipulation on "genuine names" was superfluous: as a matter of empirical fact, ordinary names refer rigidly.

Kripke's positive proposals avoided serious problems which he spotted for the dominant theories of names. Russell had maintained that names abbreviated descriptions, believing this theoretical move could explain the epistemic asymmetry between (3) and (4) – the latter is informative because it is analysed as something like "The first body visible in the morning sky = the first body visible in the evening sky".

Additionally, Russell had maintained that descriptions of the form "the so-and-so" never refer. According to his Theory of Descriptions, a sentence "the so-and-so is such-and-such" is shorthand for "exactly one thing is so-and-so and every so-and-so is such and such". The only genuine names for Russell, so-called *logically proper names*, were "this" and "that". A logically proper name has two essential features: first, its reference exhausts its meaning; second, relative to a particular moment, it refers to an object of direct perceptual awareness. From 1910 to 1970, descriptive theories of names reigned.

Some philosophers, notably Quine, followed Russell in maintaining that names abbreviate descriptions. Others, notably Searle, Strawson, and Wittgenstein, held that names refer but have their references fixed by descriptions (or clusters of descriptions): find whoever satisfies "the first woman to fly the Atlantic" and you have found the reference of "Amelia Earhart".

It is egregiously wrong to claim, as Richard Rorty does (*London Review of Books*, 1980), that Kripke denounced the Theory of Descriptions. Kripke invoked the Theory of Descriptions and defended it in print in 1977. His complaint was with descriptive theories of names, whatever theory of descriptions was assumed. He saw deep problems in the idea that names abbreviate descriptions and in the idea that names have their references fixed by description. In his earliest papers, Kripke had tacitly assumed that names abbreviated descriptions, and that only logically proper names could be names in modal logic if Substitutivity were to hold. One great insight of *Naming and Necessity* is that both Russellian extremes are untenable: ordinary names are neither abbreviations for descriptions nor logically proper names. Thus Quine, Marcus and Kripke himself, until at least 1962, had *all* been wrong.

Kripke did not work in a vacuum. Descriptive theories of names had been under strain for some time. In 1947–8, Arthur Smullyan had spotted asymmetries between names and descriptions in modal sentences: (7) Amelia Earhart might not have flown the Atlantic; (8) The first woman to fly the Atlantic might not have flown the Atlantic. (7) is unambiguously true, whereas (8) is ambiguous between (8a) and (8b): (8a) There is at least one world in which the first woman to fly the Atlantic (in that world) did not fly the Atlantic (in that world) (8b) The first woman to fly the Atlantic (in the actual world) did not fly the Atlantic in every world. (8a) is false; but (8b) is true. If "Amelia Earhart" is shorthand for "the first

woman to fly the Atlantic", why is (7) unambiguously true? In the face of such data, Smullyan suggested that ordinary names might be logically proper and argued that Quine's objections to modal logic could be avoided by heeding Russell's distinction between descriptions and logically proper names. If ordinary names are logically proper, then (5) and (6) agree in truth and so satisfy Substitutivity. By contrast, if ordinary names abbreviate descriptions, then (5) and (6), when analysed in accordance with the Theory of Descriptions, contain no names and Substitutivity becomes irrelevant. Føllesdal reiterated Smullyan's observations in 1961 and argued that nothing is a genuine name in modal logic unless it is rigid; and in 1962 Marcus repeated Smullyan's points and suggested that, in certain circumstances, even descriptions are logically proper. But Kripke was the first to mount a detailed and compelling attack on descriptive analyses of names in natural languages, to present a plausible alternative, to draw the philosophical consequences of the shift in view.

In connection with Smullyan's modal asymmetry, students are quick to point out that if "Amelia Earhart" abbreviates "the first woman to fly the Atlantic in the actual world", the troublesome ambiguity disappears. But Kripke saw that "actualizing" the description in this way provides only temporary respite. How is the epistemic asymmetry between (9) and (10) to be explained? (9) Amelia Earhart flew the Atlantic; (10) The first woman to fly the Atlantic in the actual world flew the Atlantic. (10) is true a priori, by reflection on its meaning and without empirical observation. (9) is not; hence the name is not equivalent to the description. The possibility of error creates further trouble. Suppose, unbeknown to anyone alive today, Earhart's friend Virginia Sykes was the first woman to fly the Atlantic. Would this mean we had always referred to Sykes when using "Amelia Earhart"? Of course not. Notice I could not have stated the hypothetical story in the way I did, if "Amelia Earhart" referred to Sykes.

These are the types of arguments Kripke used to undermine descriptivism in 1970. Kripke's positive proposals are far-ranging. If the reference of a name is not fixed by description, then how is it fixed? Kripke suggested that my uses of "Socrates" refer to Socrates because they tap into a practice licensed by a historical chain of uses, terminating in a more or less formal act in which Socrates was baptized "Socrates". This model applies just as much to names of elements, compounds, species and natural phenomena. The metaphysical consequences of this picture – some of which were articulated independently by Putnam in the 1970s – have had a profound impact on philosophical debates about science and have been used to undermine relativistic claims attributed to Kuhn, Feyerabend and others. A similar idea appears in works by Geach and Donnellan published in 1969 and 1970. (Kripke and Donnellan acknowledge one another – the gist of Kripke's position was widely known in 1969, largely through a paper published by Kaplan that year.) The most powerful thesis in *Naming and Necessity* is the thesis that ordinary names refer *rigidly*. Kripke is at pains to separate metaphysical questions from those of a logical, linguistic, or epistemological nature. The notion of necessity that engendered modern modal logic is overtly linguistic and fuelled by epistemological concerns. In the positivist-inspired philosophy to which Kripke was, in part, responding, the idea of a statement being necessary was deeply connected to the idea of its truth being knowable a priori. A statement is logically necessary if it is a logical truth, and logical truths were meant to be true a priori. Kripke wanted to allow for statements that are necessary although *not declared so by logic alone*.

A name is rigid if it refers to the same object in every metaphysically possible world in which that object exists. The rigidity of names has two immediate consequences. First, Substitutivity holds for names in modal sentences: "Morning Star" and "Evening Star" name the same object, so (6) is true when "necessarily" is understood metaphysically. Second, if an identity claim involving ordinary names is true, it is *necessarily* true. "Morning Star" and "Evening Star" both refer to Venus in every possible world; so, not only does the truth of (6) guarantee the truth of (4), the truth of (4) guarantees the truth of (6)!

This conflicts with the belief, widely held before 1970, that although (3) is necessary, (4) is contingent, its truth determined by empirical observation rather than a priori reflection. (3) is logically necessary, uninformative and a priori; (4) is none of these things. In 1962, Marcus held (4) to be logically necessary, hence not empirical, whereas Quine held it to be empirical, hence not logically necessary. Kripke's questions at the time were portentous.

He was moved to side with Quine because (4) is not a priori; but he saw the attraction of viewing (4) as necessary, in *some* sense. By 1970, he had everything straightened out. The *metaphysical* issue of whether (4) is necessary or contingent had been conflated by all parties with the separate *epistemological* (and *logical*) issue of whether its truth can be determined by a priori reflection or requires empirical observation. There is no reason, Kripke argues, why a claim should not be empirical and necessary, given a proper conception of necessity; and (4) is just such a claim. So (4) and (5) are *both* necessary – indeed, *every* true claim "A = B" is necessary when "A" and "B" are names or other rigid expressions.

Marcus did *not* take (4) to be metaphysically necessary and empirical in 1962. First, she construed necessity *logically*, witness her appeals to results she obtained in the 1940s for *logical* necessity and her formal theory which declares a sentence necessary if it is a *logical truth*. Second, in response to Kripke's questions, Marcus justified the necessity of (4) by suggesting that "Morning Star" and "Evening Star" are logically proper names, known to co-refer because a dictionary says so. As Kripke, Soames and Burgess stress, appealing to a dictionary hardly makes (4) *empirical*. (To claim otherwise is as silly as claiming that "all bachelors are unmarried" is empirical, because consulting a dictionary to see if it is true is a partly empirical exercise.) Marcus's answer to Kripke is revealing. The edited transcript has Kripke asking whether, on Marcus's view, all true identity claims involving names are "necessary", and it has Marcus using "necessary" in her reply. But Kripke recalls himself and Marcus both using "analytic" (true in virtue of meaning). If "necessary" is understood as *analytically* necessary, the difference evaporates, merely raising questions about how "analytic" came to be printed as "necessary" and confirming that Marcus was not talking about a metaphysical conception of necessity. Paul Humphreys, who prepared the verbatim transcript, confirms that Kripke and Marcus both used "analytic", which demonstrates again that Marcus was concerned with a logico-linguistic (that is, logical or analytic) notion of necessity. Unfortunately, Marcus is still blocking publication of the verbatim transcript. It would be good to settle the matter publicly by printing in *Synthese* the relevant passage under a "fair use" policy.

None of Kripke's main ideas appears in Marcus's 1962 paper or in anything else she published before Kripke's 1970 lectures. However, there is something in Marcus's paper that Kripke rejects: Smullyan's suggestion that ordinary names are logically proper, which entails that Substitutivity holds for names *universally*

and hence for names occurring in epistemic sentences such as (11) and (12): (11) Sappho believed that Evening Star = Evening Star (12) It is a priori that Evening Star = Evening Star.

But most philosophers – including Frege, Russell, Carnap and Quine – hold that substituting "Morning Star" for "Evening Star" in these sentences need not preserve truth. Kripke rejects Substitutivity for (12). If names are logically proper, then they are rigid; so if Marcus was considering names in natural language in 1962, she anticipated both Kripke's rigidity thesis and the "direct reference" theory articulated by Kaplan in the 1970s; but then so did Mill, Russell and Smullyan. In its purest form, direct-reference theory holds that the meaning of a name is just its reference and that reference is not determined descriptively. Kaplan, Soames and others have refined such theories to make them less susceptible to problems raised by epistemic sentences. It is an open question whether Kripke or anyone else can articulate a plausible theory according to which names refer *rigidly* without referring *directly*.

Although there is much to be learned from *The New Theory of Reference*, its motives are unclear. The APA blundered when it accepted Smith's original paper. A bad situation was made worse in 1995 when *Synthese* published it. Kluwer Academic's decision to publish *The New Theory of Reference* might have been explainable, had Marcus's 1962 paper and the verbatim transcript of the ensuing discussion been included. If its aim is to raise doubts about Kripke's contributions to philosophy, then it fails. But if its purpose is to shed light on some of philosophy's most important and difficult issues, to articulate Kripke's seminal role, and to contrast the fruits of diligent research with the nonsense that results from ignorant forays into difficult terrain, it is a success.

Smith's papers are not worthy of discussion. He is confused about Substitutivity; the necessity of identity; the origins of modal logic; Russell's Theory of Descriptions; logically proper names, and the basic vocabulary of logical metaphysics. He misunderstands vital distinctions: logical vs metaphysical; worlds vs models; referring rigidly vs referring directly; a priori vs empirical. Repetitions, churlish phrases, misused labels, spurious classifications and attributions, an extraordinary number of typographical and grammatical errors, and idle talk of "official histories" give his contributions the whiff of work hurriedly pasted together by a cocksure undergraduate manifestly out of his depth.

Smith's wild talk is not restricted to twentieth-century philosophy. He seeks direct reference in Peirce, Hume, Ockham, Augustine, Plato and even Parmenides – he does not tell us where to find it in the surviving hexameters of *On Nature*. By these lights, Thales should be credited with the necessity of identity, the necessary a posteriori, and the rigidity of natural-kind terms, neatly rolled up in the statement "all is water".

Hintikka – a pioneer of possible-worlds semantics – must take overall responsibility for the appearance of Smith's papers. He is editor-in-chief of the *Synthese* Library and was Editor of *Synthese*. In 1995 when it accepted Smith's original paper, *Synthese* played an important role in the development of the philosophy of language in the twentieth century; it is sad to see it floundering as we enter the twenty first. Part of the problem may be the publisher. Kluwer routinely pumps out overpriced volumes of poor philosophical quality. Perhaps it is now mostly interested in gouging money from libraries with its aptly named *Synthese* Library volumes.

Kripke and Marcus wisely declined to contribute to this particular volume. Let us hope neither stoops to discussing Smith's charges in future work, which most of us will then read with as much profit as we read their earlier work.