



## Kripke's revolution revisited: Challenges to rigid designation in contemporary semantics

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### Abstract

This review article reexamines Saul Kripke's seminal theory of rigid designation, first articulated in *Naming and Necessity*, against the backdrop of semantic debates up to 2020. Kripke's distinction between rigid designators and non-rigid descriptions transformed the philosophy of language by grounding direct reference, a posteriori necessity, and essentialism for proper names and natural-kind terms. Yet work in two-dimensional semantics, experimental philosophy, scientific naturalism, pragmatics, and modal logic has exposed persistent vulnerabilities. This article critically surveys these challenges, arguing that while rigid designation retains explanatory power for modal and referential stability, it requires supplementation by descriptive, contextual, and framework-relative elements to address gaps in fiction, empty names, scientific essentialism, and epistemic access. The analysis underscores the enduring legacy of Kripke's revolution while highlighting paths toward a more integrated semantic framework.

**Keywords:** Rigid designation, Kripke, semantics, descriptivism, direct reference, possible worlds, natural kinds, modal logic

### Introduction

Saul Kripke's *Naming and Necessity* (1980) stands as one of the most transformative texts in twentieth-century philosophy of language, fundamentally changing how philosophers and linguists understand reference, modality, and meaning<sup>[1]</sup>. Before Kripke, the dominant Frege-Russell descriptivist view held that proper names and natural-kind terms act as shortened descriptions that fix their reference through associated properties<sup>[2]</sup>. Kripke challenged this view with a series of modal, semantic, and epistemic arguments, showing that names are rigid designators that refer to the same object in every possible world where that object exists, and that many identity statements involving such terms are necessary truths knowable only posteriori<sup>[1]</sup>. The literature review highlights both the influence of Kripke and the extensive critique that followed. Early responses, such as those by Donnellan (1970) and Kaplan (1989), supported the causal-historical view of reference fixing while maintaining rigidity for indexicals and demonstratives<sup>[3, 4]</sup>. Putnam's (1975) Twin Earth thought experiments extended rigidity to natural-kind terms, suggesting that "water" rigidly designates H<sub>2</sub>O across worlds, regardless of superficial descriptions<sup>[5]</sup>. By the 1990s and early 2000s, defenders like Salmon (1986) and Soames (2002) formalised these ideas within direct reference theories, arguing that rigidity addresses Frege's puzzle and underpins essentialist claims about origins and constitution<sup>[6, 7]</sup>. Yet even in this period, cracks appeared. Schwartz (1980, 2002) questioned whether general terms could be rigid without collapsing into essentialism that science itself does not support<sup>[8, 9]</sup>. Devitt (2005) emphasised that reference fixing involves causal chains but warned against overreliance on modal intuitions detached from linguistic practice<sup>[10]</sup>. Experimental philosophers, beginning with Machery et al. (2004) and continuing through subsequent studies, have shown cross-cultural variation in intuitions about Kripke's Gödel-Schmidt case, suggesting that folk semantics may lean descriptivist<sup>[11, 12]</sup>. Two-dimensional semantics, advanced by Chalmers (1996, 2006) and Jackson (1998), introduced epistemic intensions

alongside subjunctive ones, enabling names to behave non-rigidly under certain epistemic scenarios while maintaining metaphysical rigidity<sup>[13, 14, 15]</sup>. Pragmatic and speech-act approaches argued that rigid designation implicitly presumes descriptive content for transworld identity and that reference stabilisation occurs through performative declarations rather than purely causal chains<sup>[16, 17]</sup>. Scientific critiques, notably by Putnam himself in later work and by philosophers such as LaPorte (2004), contended that rigidity for natural kinds fails under finer-grained scientific taxonomies; different theoretical frameworks may produce incompatible characterisations of the same substance, making cross-world reference problematic<sup>[18, 19]</sup>. Fictional names and empty references present further challenges. Work by Kripke (2013) and philosophers like Braun (2005) and Everett (2013) showed that deferred ostension and approaches to negative existentials challenge the rigidity thesis, as fictional names must change reference across storytelling worlds<sup>[20, 21, 22]</sup>. In extensions of modal logic, simplifications and logic-specific notions of rigidity (e.g., by Haze 2016) differ from Kripke's original metaphysical concept<sup>[23]</sup>. Plural and complex names have been examined in works by Burge (1973) and others, indicating that treatments using bound variables or variabilism better reflect linguistic data than strict rigidity<sup>[24]</sup>. Natural-kind externalism without essentialism, supported by Boyd (1991) and Millikan (1984), further undermines the Putnam-Kripke orthodoxy by separating reference from hidden essences<sup>[25, 26]</sup>. This body of literature, encompassing over thirty sources, reveals a pattern: Kripke's rigid designation excels at explaining modal stability and direct reference but struggles with scientific pluralism, epistemic two-dimensionality, pragmatic performativity, fictional discourse, and experimental data on linguistic competence. The present review synthesises these challenges analytically and critically, showing that the Kripkean framework, while groundbreaking, requires hybridisation rather than complete replacement. Subsequent sections analyse specific areas of

tension, using the cited works to highlight both vulnerabilities and possible solutions.

The revolution Kripke started remains relevant because it still prompts rigorous questioning. Far from being settled doctrine, rigid designation now acts as a benchmark against which modern semantics evaluates itself, sometimes in disagreement and sometimes in constructive dialogue. This article suggests that recognising these challenges does not lessen Kripke's accomplishment; instead, it deepens our understanding of language as a lively interaction of reference, context, and cognition.

### Challenges from the Revival of Descriptivism

One of the most persistent critiques of rigid designation comes from philosophers aiming to rehabilitate descriptivism without reverting to the crude Frege-Russell version that Kripke refuted. Searle (1983) had already proposed a modified cluster theory that integrated causal elements while maintaining descriptive anchoring<sup>[27]</sup>. In the 1990s and 2000s, neo-descriptivists like Jackson (1998) and Chalmers (2006) developed two-dimensional frameworks where primary intensions serve a descriptive function in determining reference across epistemic scenarios<sup>[14, 15]</sup>. According to these perspectives, Kripke's causal-historical chain theory implicitly depends on informational descriptions to distinguish objects across worlds; without such descriptions, rigid designation reduces to an uninformative placeholder.

Critics such as Soames (2005) have strongly challenged two-dimensionalism, arguing that it misrepresents the nature of modal and epistemic content<sup>[28]</sup>. Yet the very existence of this debate shows that descriptivism has not vanished; it has been refined. Works by Recanati (1993) and others suggest that reference stabilisation often mixes descriptive and causal elements, with the balance shifting depending on the context<sup>[16]</sup>. These analyses show that, when properly refined, descriptivism can accommodate Kripke's modal intuitions while avoiding the metaphysical excesses of unmediated direct reference.

Wittgensteinian considerations also reappear in this context, as in the work of Strawson (1959) and later interpreters, suggesting that proper names function within language games whose rules allow descriptive flexibility without losing referential success<sup>[29]</sup>. The resulting hybrid views hold that rigidity operates *de jure* in modal contexts but gives way to descriptive mechanisms in epistemic or conversational ones. Such positions do not dismiss Kripke so much as contextualise him, showing rigid designation as one tool among many rather than the fundamental semantic principle.

### Scientific and Natural-Kind Challenges

Kripke and Putnam's extension of rigidity to natural kind terms has faced especially sharp scrutiny from scientifically informed philosophers. Putnam himself, in later writings (1990), acknowledged that the microstructural essence of natural kinds may be more complex than originally thought, and that different scientific domains may legitimately classify substances differently<sup>[18]</sup>. Boyd (1991) defended a "homeostatic property cluster" view of natural kinds, according to which kinds are not defined by a single essence but by a cluster of properties stabilised by causal mechanisms<sup>[25]</sup>. On this view, the rigid designator "water"

may be tied to a historical chain without requiring an invariant microstructural essence across all possible worlds. LaPorte (2004) further argued that natural-kind terms can change their extension over time as science develops, suggesting that rigidity cannot be absolute<sup>[19]</sup>. Likewise, Dupré (1993) claimed that biological species, at least, are not natural kinds in the Kripkean sense because they lack the necessary essential properties<sup>[30]</sup>. These critiques challenge the metaphysical rigidity that Kripke and Putnam assumed, moving semantics toward pluralistic, theory-laden frameworks.

Even philosophers sympathetic to externalism, such as Millikan (1984), have argued that the reference of natural-kind terms is determined by historical and functional factors rather than by any modal essence<sup>[26]</sup>. This "teleosemantic" approach keeps reference external but drops the claim that kind terms rigidly designate across all possible worlds. The cumulative effect is clear: scientific realism, once thought to support rigidity, actually complicates it, forcing semantic theorists to reconcile the modal robustness of reference with the fallibility and dynamism of scientific practice.

### Fiction, Empty Names, and Deferred Reference

Fictional discourse provides another area where rigid designations are challenged. Kripke (2013) addressed some of these issues, noting that fictional names like "Sherlock Holmes" do not refer to actual objects and thus cannot be rigid in the same way as ordinary names<sup>[20]</sup>. Later work by Braun (2005) and Everett (2013) examined how negative existentials ("Sherlock Holmes does not exist") can be true even if the name has no referent, challenging the idea that all names are inherently rigid<sup>[21, 22]</sup>. Their proposed solutions, treating empty names as lacking semantic value or as referring to fictional entities with different modal profiles, maintain meaningfulness but sacrifice strict rigidity.

Donnellan's (1974) distinction between referential and attributive uses of definite descriptions also influenced discussions of deferred reference, showing that speakers can refer to objects using descriptions without those descriptions forming the meaning<sup>[31]</sup>. In the case of fictional and abstract objects, this referential flexibility suggests that rigidity might be the default, which can be relaxed in certain linguistic contexts.

Research on complex names and plural references (Burge, 1973) further demonstrates that some referring expressions behave like bound variables or non-rigid designators in discourse<sup>[24]</sup>. The implication is significant: if rigidity does not apply to a domain central to everyday language, then its scope must be narrower than Kripke envisioned, and semantic theories need to account for various referential behaviours.

### Modal, Epistemic, and Logical Extensions

Purely logical and modal challenges further complicate the picture. Two-dimensional approaches, implicit in much work from the 1990s onward, allow names to be rigid subjunctively but non-rigid epistemically, accommodating Frege puzzles without fully abandoning direct reference<sup>[14]</sup>. The formal semantics of rigidity has also been refined: Haze (2016) proposed a streamlined theory that relativises semantic properties to worlds without Kripke's full metaphysical framework<sup>[23]</sup>. More broadly, the relationship between rigidity and the semantics of modal operators

remains an active area of research, with some logicians exploring systems in which rigid designation is treated as a derived notion rather than a primitive.

The debate over haecceitism (the view that individuals possess primitive thisness) intersects with the issue of rigidity. Philosophers such as Forbes (1985) and Salmon (1986) argued that rigid designation supports haecceitist views of transworld identity, but critics counter that such accounts are not required by the semantics of names <sup>[6, 32]</sup>. Experimental data from Machery et al. (2004) and subsequent replication studies show that speaker intuitions often differ from pure rigidity, favouring mixed descriptivist-causal models <sup>[11]</sup>.

### Pragmatic and Inferentialist Alternatives

Inferentialist approaches, championed by Brandom (1994) and others, shift focus from reference to the role of expressions in reasoning and social practices <sup>[33]</sup>. On such views, proper names derive content from their inferential roles rather than from a fixed referent. While inferentialism does not deny that names refer, it treats reference as downstream from conceptual roles, thereby allowing for more flexibility than Kripke's original perspective.

Pragmatic accounts of reference, as developed by Stalnaker (1978) and Recanati (1993), emphasise that reference is often determined by the context of utterance rather than being fixed permanently by a causal chain <sup>[16, 17]</sup>. These approaches support the idea that rigid designation can be viewed as a default that pragmatic factors can modify. They do not deny referential success; instead, they see it as dynamic and -sensitive to context.

### Conclusion

The previous review of challenges to Kripke's rigid designation shows a semantic landscape that is both enriched and unsettled by decades of critical discussion. What started as a clear break from descriptivism has become a productive debate where rigidity functions as both support and challenge. Modern critiques ranging from scientific framework pluralism and pragmatic performativity to fictional variability and epistemic two-dimensionality do not undo the Kripkean structure; instead, they reveal its limits and encourage constructive improvement.

A rigid designation continues to effectively explain the modal profile of names and kind terms, the possibility of a posteriori necessities, and the causal-historical grounding of reference. However, its limitations have become clearer. Empty and fictional names require non-rigid or modified mechanisms to maintain truth-apt discourse. Scientific essentialism for natural kinds conflicts with the pluralistic, theory-relative nature of modern science. Experimental and cross-cultural data challenge claims of universal modal intuitions. Pragmatic and inferentialist accounts show that reference stabilisation often depends on descriptive, performative, or normative elements that Kripke aimed to exclude. Logical extensions and analyses of complex names suggest that rigidity must be relativised or supplemented to address diverse linguistic phenomena.

These tensions do not indicate the theory's obsolescence but its evolution. A hybrid semantics—one that maintains metaphysical rigidity for clarifying necessity and identity while adding descriptive content for epistemic and conversational purposes, framework relativity for scientific terms, and contextual operators for fiction—offers the most

promising way forward. Such a framework respects Kripke's insight that language connects to the world directly and modally robustly, while also acknowledging the diverse ways speakers and scientists use terms in practice.

Philosophers of language today hold a privileged position: the revolution Kripke sparked has not ended; it has diversified. Future research will likely explore formal integrations of two-dimensionality with causal chains, empirical testing of hybrid models across languages, and applications to emerging fields such as artificial intelligence semantics. The enduring value of rigid designation lies precisely in its ability to provoke these inquiries. By revisiting the challenges with analytical rigour and critical openness, we move closer to a semantics that is both faithful to modal intuitions, responsive to scientific reality, and attuned to the pragmatic richness of human discourse. Kripke's revolution, far from being over, continues to shed light on the intricate dance between words, worlds, and minds.

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