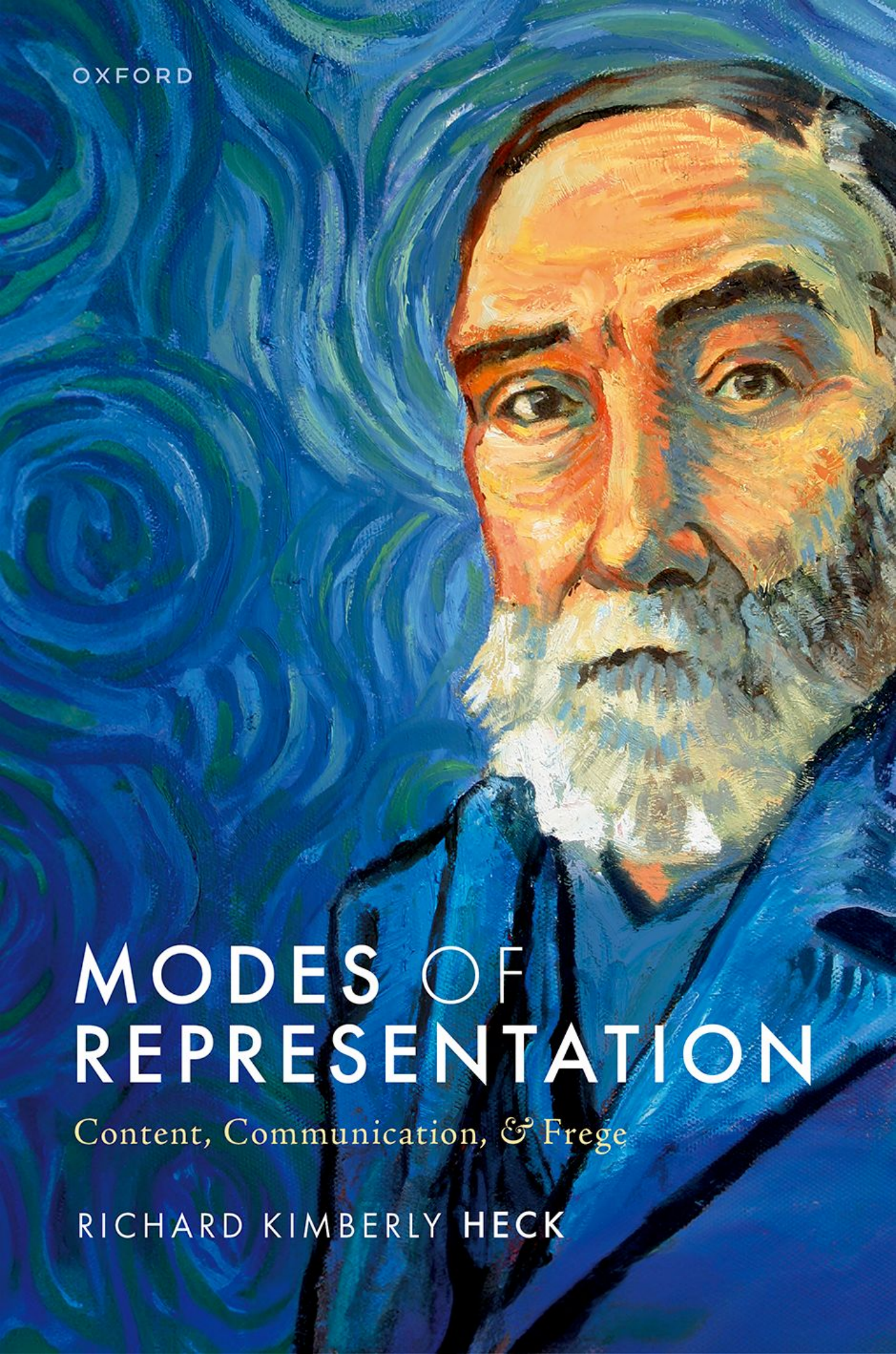
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RICHARD KIMBERLY HECK

Modes of Representation

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Content, Communication, and Frege

Richard Kimberly Heck

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For my students

Contents

Preface

In the spring of 1984, during my junior year at Duke Univeristy, I took a graduate seminar on analytic philosophy taught by Carl Posy. It was there that I first read Frege. I was in love. The next year, I applied for the Marshall and Rhodes Scholarships with the intention of going to Oxford to work with Michael Dummett, whose work on anti-realism I'd encountered in the seminar and whose monumental *Frege: Philosophy of Language* (Dummett, 1973) I had read the following summer. (I had also purchased *Truth and Other Enigmas* (Dummett, 1978d), intrigued by the title.) I was waitlisted for the Marshall, but I had no expectations whatsoever that I had any chance. In one of life's truly bizarre moments, though, on the very same day that my roommate's mother died in a scuba diving accident, I heard, by old-fashioned paper letter, that a spot had opened up. I withdrew my applications to Ph.D. programs in the US and started getting excited about Oxford. I was thrilled to be accepted at New College, where Dummett was.

When I arrived, the new graduate students gathered at 10 Merton Street (then the home of the Philosophy Faculty) to be assigned supervisors. Imagine my surprise, and thrill, to find that the two people doing the assigning were Michael Dummett and Peter Strawson! I had expressed an interest in Wittgenstein (the subject of my senior thesis) and so was first assigned Colin McGinn as an advisor. That fall, Colin introduced me to *Varieties of Reference*, which was *the* book people were then talking about in Oxford, and I will always be grateful to him for that. But my goal had been to study Frege with The Man, and, after I pleaded with him the next term, he agreed to take me on. It was in those tutorials with Michael that I first read Crispin Wright's book *Frege's Conception of Numbers as Objects* (Wright, 1983), which would have enormous influence on my career. But we also spent time on Frege's corpus: Michael gave me a very long reading list, omitting only the papers on complex analysis, most of the correspondence, and, ironically, the formal parts of *Grundgesetze*. It was an extraordinary experience to talk Frege with him every week (of term) for those two years.

After Oxford, I went to MIT. My Ph.D. dissertation, directed by George Boolos, was mostly on abstract objects,[1] but I also studied philosophy of language, mostly with Jim Higginbotham but also with Robert Stalnaker and Sylvain Bromberger. I claimed philosophy of language as an AOS when I applied for jobs, and philosophy of language was one of the first

[1]The three papers that comprised the dissertation would be published as Heck (1998), Heck (2000b), and Heck (2011a), the first two in roughly the form they were in the dissertation and the last much modified. The latter two appear also in Heck (2011b).

things I taught at Harvard. It was in sessions with my first graduate student, Steven Gross, that I started to think seriously about the issues discussed in this book. I can't quite remember how it all happened, but somehow Steve and I got to talking about the significance of the fact that, as Frege himself conceded, different speakers can assign different senses to a single name. In the course of those conversations, the basic argument of what would become "The Sense of Communication" (chapter 3) emerged. That would be the first of a series of papers on related topics: Most of the rest of this book, but also "Idiolects" (Heck, 2006a) and "Semantics and Context-Dependence" (Heck, 2014), which I hope to include in another collection.

More recently, my work has moved into very different areas, connected with gender and sexuality. In part, that was because I needed a new challenge, but also because I felt I'd said most of what I had to say about sense and reference. In that respect, this book is an attempt to wrap up a thirty-year project, which is not to say that it amounts to some kind of 'final statement', let alone some polished and coherent worldview. I am all too aware that there are many questions that have been left unanswered, and I try to say what some of them are in the first chapter. I hope my work will inspire others to take up the mantle.

I have often had reason, especially when I was at Harvard, to express my view that the truth of a philosopher's views is no measure of the importance of their work. If it were, then we would all be doomed. What matters, and what I tell my students matters, is the quality of the reasons the philosopher is able to marshall and the light their discussions throw on the problems with which they are concerned. Developing the strongest possible version of a view will often do just that, even if that view is wrong. I hope that, by that standard, the work collected here has some value. Of course, if I did not have some faith in the views for which I argue in these papers, I could not have written them. But it has always been my policy to try, with every paper, to think the issues through anew, as best I can. If connections should emerge with what I've written previously, then I'd regard that as a good sign. But trying to make new papers cohere with old papers has never been a goal of mine, and that will be obvious throughout. I make an effort, in the first chapter, to resolve some of these tensions, but I confess that I do not know how to resolve all of them.

Mental Health

In 2015, Peter Railton gave the Dewey Lecture at the Central Division meeting of the American Philosophical Association. I was not present, but I heard about it, and quickly acquired a written copy. In it, Railton 'came out' (his term) as someone who has struggled, for many years, with his mental health. He does so because, he says, it is important to lift the stigma from

mental illness, and the only way to do that is the way the stigma was lifted from homosexuality: By gay and lesbian people being brave enough to make themselves known in a world where, at that time, the penalties for doing so could be significant. *Everyone*, it turned out, knew someone who was gay, and that helped break the stigma. Of course, there are still bigots (many of whom cloak their bigotry in religious beliefs),[2] and in some places in the United States it can still be dangerous to be openly gay. But it's amazing how fast things have changed. It's not even thirty years since the so-called Defense of Marriage Act passed the US House of Representatives 342 to 67 (188 to 65 among Democrats) and the Senate 84 to 16 (32 to 14 among Democrats). And yet, many *Republicans* just recently voted to make same-sex marriage legal throughout the United States (though they still won't vote to protect the jobs and homes of same-sex couples, and the US Supreme Court just invalidated state laws designed to protect their right to access public accommodations).

I want to take this opportunity to add my voice to Peter's.

For most of my life, I have struggled with extreme anxiety. In my case, much of that would manifest itself in concerns about my physical health, usually my cardiac health. I literally spent (fifteen? twenty?) years of my life closely monitoring my heartbeat for any sign of trouble. The slightest twinge in my chest would lead to utter terror, and I am not exaggerating. I ended up, more than once, in the emergency room, the victim not of a cardiac episode but of a panic attack. There were times I wondered if I could take it any more. I spent several years terrified of knives. I was worried that, somehow, one of them would slice through my wrist. I think my real worry was that I would pick up one of those knives and, in a moment of clarity, use it to kill myself.

Maybe the worst such experience happened in early 2015, when southeastern New England received record snowfall.[3] Our house, like every other house on our block, had sprung a leak, and we could hear the roof creak with the weight of the snow. One night, we went to dinner at the house of some friends. I do not quite remember why, but I became completely convinced on the way there that our roof had collapsed, that our beloved cats were probably dead (given where they likely would have been), and that much of our home had been destroyed. And when I say

[2]Let me emphasize, since this often seems not to be appreciated, that not all religious people, and not even all Christians, are opposed to homosexuality. For many years, my family attended First Church in Cambridge, Congregational, United Church of Christ (which dates to the founding of Cambridge, in 1633). Our pastor, Mary Luti, was a lesbian, partnered with an associate pastor at a nearby Episcopal church. When a state-wide referendum was scheduled in an effort to overturn the Massachussets Supreme Court's decision, in *Goodridge*, that legalized same-sex marriage in Massachusetts, Mary gave a fiery sermon in defense of same-sex marriage. (Her text, if I recall correctly, was Acts 8:26–42.) The sermon brought the congregation to tears, and then to its feet. Many other churches, synagogues, and the like set a similar example.

[3]In Canton MA, where I then lived, over a two- or three-week period, we had three snowstorms of more than two and a half feet, and several smaller ones.

"completely convinced", I mean it. I was as sure of that as I was of where I was. Over the course of the evening, my panic resolved itself, and I was able to enjoy the company of our friends. But I was still anxious as we approached the house that night.

Even now, it feels shameful to admit that. I mean, how could I possibly have been so irrational? But that is what living with anxiety is like. It is utterly debilitating. I am, to be honest, amazed that I am still alive, and that I have been as successful in my career as I have been. My anxiety is what prevented me, for years, from finishing my first two books, *Frege's Theorem* (Heck, 2011b) and *Reading Frege's Grundgesetze* (Heck, 2012), and from making progress on many other projects. The only reason I ever was able to finish those books, and to start work on this one, was because I got myself into therapy in 2008 or so. The presenting issues were different, but my therapist, Dr Larry Abrams (a clinical psychologist and trained psychoanalyst), was patient and kind and supportive and deeply insightful, and, slowly, I was able to achieve some kind of balance. As the date mentioned in the last paragraph shows, however, external events always threatened to upend the fragile balance I'd achieved. It was not until 2017 or so, after two other failed attempts in this direction, that Adele Palazzo, a psychiatric nurse practitioner, helped me to find a combination of medications that would keep me, mostly, on an even keel. It was magic. Another piece to the puzzle was even more recent: quitting alcohol. I'd used it to self-medicate for years, and the pandemic made what had been an unhealthy relationship with alcohol an abusive one.

In the course of my therapy, I remembered something I had long tried very hard not to remember—something that explains a lot of my PTSD. In 2002, the *Boston Globe* published the 'Spotlight' series exposing the systematic sexual abuse of children in the Roman Catholic church. I was living in Cambridge at the time and subscribed to the *Globe*, and I read the series as it was published. My first thought was, "I was one of those children". What was so strange was that I had no actual reason to believe that, no memory of any such event. What I did have was my anxiety and a very fragmentary memory that could be so vivid that it would leave me shaking and sweating and crying, but which I could not piece together. (I now know that those episodes were flashbacks.) With Larry's help, I eventually remembered enough to know what my memory was really about. I *was* one of those children, five or six years old, though I still do not remember well enough, even today, to know where it happened or who raped me. My childhood, at that time, was very chaotic anyway. But it probably happened at St James's Church, in Albany NY. The Albany diocese just so happens to be where the Boston diocese sent their problem priests, taking Albany's in return, in one of the worst 'exchange programs' in history.

It causes me no end of agony that the Catholic hierarchy still has not come clean about these horrors, that there are still constant revelations

from around the world of the systematic abuse of children at the hands of those who claim to represent God. Ireland, Australia, Pennsylvania, and Illinois[4] are some recent cases, but maybe the worst recent news was about the neglect and, in effect, systematic extermination of hundreds of Indigenous children in Canada. Every one of these new horrors triggers me again. The recent veneration of Karol Wojtyła and Joseph Ratzinger, both of whom are more than complicit in all of this, makes me want to vomit. As far as I'm concerned, they are no better than mafia bosses.

The most positive thing that emerged from my therapy, however, was a proper appreciation of my gender identity. I have felt for most of my life like people could not see the real me, which contributed mightily both to my anxiety and to my loneliness and depression. I have never really felt comfortable moving through the world as a man (though I am profoundly aware of the privileges that has given me, and continues to give me). There are elements of my earliest memories that illustrate that discomfort. I have a vivid memory of being in the bath, when I was about eight, tucking my genitals down between my legs and crossing them and thinking, "That's how it *ought* to look". For many years, then, I thought maybe I should have been born a girl, but, really, that never felt quite right either. When other things in my life had settled down enough, then, I started to discuss this with Larry. He was incredibly supportive, as were my partner Nancy and my daughter Isobel. But it wasn't until 2011 or so that, searching the web for something that would help me, I encountered the idea that one didn't have to be a man or a woman but could be non-binary. Finally, I had some way to make sense of my own experience.

It was a long and difficult process to try to figure out exactly what my relationship to gender was—my therapist, after we moved to Providence, Billy Brennan, has been very helpful with this part of my journey—but, eventually, I decided that I was just my own idiosyncratic mix of genders and that the only thing I could really do was to be myself. Nancy once told me she'd met a person at the vet's office who described themselves as 'gender chaotic'. I'm not sure I'd go that far, but it's along the right lines.

Fortunately, I live and work in a place that is greatly supportive of queer people like me, and 'coming out' as genderqueer has been almost entirely a positive experience. It's allowed me to serve as a role model for a group of students who very much need one. (The current demonization of queer people generally, and genderqueer people specifically, is horrifying and is literally going to kill people.) My visibility on campus has, I think, been a force for good, and for change. I want to close with a story about why that sort of visibility matters.

[4]Where, according to a report from the Attorney General's office, *four hundred and fifty* people associated with the Catholic 'church' have been "credibly accused" of sexual abuse. That simply does not happen without the knowledge of people in positions of authority, and their willingness to look the other way. If anything is clear, it is that the Catholic hierarchy care more about their own power than about the children in their care.

In Fall 2017, I had started to think about coming out—specifically, about asking people to use they/them pronouns to refer to me. As part of that, I started to think about changing my name, either what I was called on a day-to-day basis or legally. I had, for many years, used "Kimberly" as a name for the feminine parts of myself. That was the name my parents had chosen for a potential baby girl—back then, it was common not to know the sex of one's expected child—so that name had always meant a lot to me. Eventually, I hit upon the idea of including it as part of my legal name, and so in February 2018 I had my name legally changed to "Richard Kimberly Heck". Having previously been known as "Richard", I now asked people to call me "Riki", a nickname that was based upon my new name (Ri for Richard, ki for Kimberly)[5] and to use they/them pronouns.

The next fall, I taught introductory logic, which is a large lecture course, around 80–90 students. It was the first time I'd taught as my new self (having been on leave the previous spring). I dressed as my new self and let the students know my pronouns, and I found them receptive and even enthusiastic. One student wrote to me after the first day, "I'm so excited to share an identity with a professor!" But they weren't the only student to whom my example meant something.

The last day of class, I distributed the course evaluation forms (which we were still doing on paper). After saying my prescribed bit, I began to leave the room, and the students clapped. That is a (lovely) tradition at Brown, as it was at Harvard: The students sometimes clap at the end of the last class to show their appreciation for our work. Halfway out the door, I realized I had forgotten something. I returned to the lectern and said, "By the way, if you use pronouns to refer to me in your comments, please remember to use 'they' and 'them'". And then the students clapped again, even louder.

Acknowledgments

Many friends and colleagues influenced and helped improve these papers over the years they were being written. Thanks to Derek Ball, David Barack, George Bealer, Mike Beaney, David Beaver, Jacob Beck, Phil Bold, Justin Broackes, Ray Buchanan, Tyler Burge, Alex Byrne, Ruth Chang, Paul Coppock, Bill Demopoulos, Max Deutsch, Josh Dever, Imogen Dickie, Sinan Dogramaci, Cian Dorr, Burton Dreben, Sir Michael Dummett, Paul Egré, Delia Graff Fara, David Finkelstein, Jerry Fodor, Graeme Forbes, Christopher Gauker, Zoltán Gendler-Szabó, Alexander George, Michael Glanzberg, Stavroula Glezakos, Rachel Goodman, Aidan Gray, Steven Gross, Louis Gularte, Anil Gupta, Nat Hansen, John Hawthorne, Jim Higginbotham, Chris Hill, David Kaplan, Kathrin Koslicki, Thomas Kuhn,

[5] And inspired, to some extent, by Riki Wilchins, a trans woman whose writings on gender helped me a great deal.

Gail Leckie, Ernie Lepore, Øystein Linnebo, Ofra Magidor, Eliezer Malkiel, Ruth Barcan Marcus, Mike Martin, Richard Mendelsohn, Alva Noë, Wayne Normal, Charles Parsons, Chris Peacocke, Dean Pettit, Paul Pietroski, Ian Proops, Jim Pryor, Hilary Putnam, Professor Quine, Kim Ramos, François Recanati, Michael Rescorla, Kate Ritchie, Mark Sainsbury, David Sanford, Simon Saunders, Sally Sedgwick, Susanna Siegel, Alison Simmons, Walter Sinnot-Armstrong, David Sosa, Bob Stalnaker, Andreas Teuber, Michael Thau, Brett Topey, Orlin Vakarelov, Dan Vest, Brian Weatherson, Kai Wehmeier, Robbie Williams, David Wong, and Ed Zalta. Thanks also to the many people who attended various presentations of this material for their comments and suggestions but whose names I was not able to get (or remember, as the case may be).

Special thanks to Robert May, for a collaboration that now stretches to almost two decades. Of the papers reprinted here, only "The Sense of Communication" and its postscript are free of his influence.

Jason Stanley's influence is also felt throughout the book, but especially in chapter 9. If not for his enthusiasm for those ideas, the paper might never have been written.

Thanks to my daughter, Isobel Heck, for discussion of relevant empirical literature and for help with some references thereto. It's a real privilege to be able to share my work with Isobel, and I could not be more proud of hers. If I couldn't be a philosopher, I'd do what she does.

Thanks to my partner, Nancy Weil, for her support, especially this summer when I was spending 10–12 hours a day working on this book. Thanks also to our cats, past and present, for their company and their love.

Let me also say thanks to the referees for the various journals in which the papers were published (and, sometimes, not published), whose unremunerated and largely thankless work not only made the papers better but helps to make peer-reviewed publication possible. May there one day be a better system.

Extra special thanks to Renée Jorgensen for permission to use her painting of Frege on the cover. Renée has a whole series of paintings of philosophers, though this one is my favorite, for obvious reasons. Check them out!

Thanks, once again, to my colleagues on the LyX development team for such a wonderful tool and to the hundreds, even thousands, of contributors to LaTeX for making it so easy to achieve beautifully typeset pages. If you're still using a traditional 'word processor', you don't know what you're missing.

Thanks to Jaehyun Hong for her assistance proof-reading.

Thanks, finally, to Peter Momtchiloff for, among other things, his patience (once again), but mostly for his belief in my work.

The book as a whole is dedicated to my students. I've been privileged and honored to teach at two fantastic universities, and the undergraduates

at Brown are really special. Brown's Open Curriculum, which does away with general education requirements, allows students to chart their own educational path, and the result is that students rarely have to take courses in which they are not genuinely interested. (Ironically, Logic, which is a requirement for the Philosophy concentration, and which I often teach, is one exception.) That allows students to retain, throughout their years at Brown, the same intellectual excitement and curiosity with which they begin their education: We do not beat that out of them by making them take courses in which they are not interested.[6] It is hard to put into words how much of a difference that makes, not just to them, but to me as a teacher.

As I was nearing the completion of this book, I decided to teach a course on Sense and Reference (one I'd taught before),[7] precisely because I knew that doing so would give me the opportunity to think through these issues one more time. I expected it to be a valuable experience, but I did not anticipate just *how* committed and *how* enthusiastic the students would be. Their responses to the readings (required every class session) frequently amounted to two or three paragraphs, which made reading and responding to their posts a lot of work for me (and for them). But it ended up being one of the best and most enjoyable courses I have ever taught. Thanks to everyone in that course for their contributions to this book.[8]

I want to offer a special word of thanks, though, to the students with whom I've worked most closely on these sorts of issues. That mostly means the many graduate students with whom I have had the privilege of working over the last thirty-odd years. (Wow.) Not just those whose dissertations I've advised, but all those who have attended my courses and seminars. I have learned a lot from all of you! But the graduate students I've advised have, of course, had the most influence on my work. As I have already mentioned above, chapter 3 was born in conversation with one such student, and almost all of these papers have been influenced, in various ways, by my work with other students. In the case of this particular book, let me mention especially Jake Beck, Tony Corsentino, Stephen Emet, Delia Graff Fara, Michael Glanzberg, Steven Gross, Geoff Grossman, Ben Jarvis, Jinho Kang, Øystein Linnebo, Sam McGrath, Miquel Miralbes del Pino, Ian Proops, Michael Rescorla, Charlie Siu, Ásta Sveinsdottir, Brett Topey, Bharath Vallabha, Catherine Wearing, and Chiwook Won. A few undergraduates deserve mention in this connection as well: Jaehyun Hong, Ishani Maitra, and Brett Sherman (as well as Michael and Ben, when they were undergraduates).

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[6] Do not think that our students end up taking only a narrow range of courses. Most of them, by far, take a very wide range of courses. But then, it is students with very broad interests that Brown tends to attract (and admit).

[7] If you'd like to see the syllabus, visit http://frege.org/phil1860-2022/.

[8] I won't name the students here, as doing so might violate their privacy, not to mention various laws.

My apologies if I've forgotten anyone who should have been included. Your contributions are appreciated as well.

Editorial Notes

Except where indicated, the papers are reprinted as they were published, with only minor editorial changes having been made: corrections of typos, occasional clarification of formulations, and so forth. I considered updating them in various ways, but the referees for Oxford University Press suggested that this could be confusing, since some of these papers have (happily) been widely cited. So, with one exception, I have not made any substantive changes.

Non-substantive changes include the following. First, many of the footnote numbers have changed, due to a change in how citations are handled (inline author–date citations here rather than footnotes in some of the published papers). As a result, footnote numbers do not always correspond with the papers as published. Where I've added substantive material to footnotes (as opposed, say, to additional references), I've enclosed that material in square brackets [like this]. Second, over the years, I've used various words as genderless pronouns: she, s'he, they, and their cognates. I've settled upon "they" and have adapted older papers to that convention.[9] Finally, and least importantly, I've changed such phrases as "this paper" to "this chapter".

The one substantial change I have made is to remove most uses of the term "intuition" and its cognates. As I argue in detail in chapters 9 and 10, for two specific cases, appeals to 'intuition' play no significant role in the sorts of philosophical arguments discussed here.[10] My use of "intuition" was mostly of the sort that Herman Cappelen (2012, p. 22) identifies as a "verbal virus". I do not seem to have meant anything very specific by the term. Thus, I was not just being lazy but, far more worryingly for an analytic philospher, imprecise. What I usually meant by an 'intuition' was a claim I was making without argument, on the ground that it seemed reasonably plausible. Most of the time, what I meant was thus something like a hunch. So the change should help to clarify what I actually meant.

I have left a few such uses of "intuition" in place, however, because they seemed to me instructive (and I've added footnotes explaining why). And, of course, sometimes I really am talking about what philosophers have come to call 'intuition'—mostly in order to declare its irrelevance. It was nice to realize that I had some dim awareness of that point even

[9] It has been argued recently that one should not use gender-specific pronouns in academic writing (Dembroff and Wodak, 2018). Although I respect what lies behind those arguments, I am not convinced, so I have not followed that practice.

[10] I tend to think that is also true of many other parts of philosophy—e.g., the Trolley Problem—but I'm unsure about some other cases, hence the hedge.

before it was argued by such authors as Cappelen and Timothy Williamson (2007).

References to works of Frege's are given by means of page references (where appropriate) to the original publications, marked "op" or "opp". These are included marginally in the *Collected Papers* and in some other reprintings. I have tried to make my references to other papers be to ones readily available publicly—for example, to the original printings of papers in journals (typically available online) rather than to reprints (not so readily available)—so as to make it easier for readers to look up citations. (Isn't that the point?) The Bibliography includes cross-references where appropriate.

There are other papers on Frege's philosophy of language that I chose not to include here: "Frege on Identity and Identity-Statements" (Heck, 2003) and the papers I've written with Robert May, with the exception of chapter 8. Although these papers do discuss issues concerning sense and reference, they are primarily scholarly and have less direct application to contemporary issues than chapter 8 does. Robert and I hope to publish a collection of our scholarly work on Frege, both joint and independent, soon. I also have not included a commentary on Imogen Dickie's *Fixing Reference* (Heck, 2017) and "The Frontloading Argument" (Heck, 2018a), which is a purely critical discussion of David Chalmers's attempt, in *Constructing the World*, to lay the foundations of two-dimensional semantics. Both of these are relevant to the issues discussed here but do not really stand on their own.

Origin of the Chapters

The papers reprinted here (i.e., previously published) were published under my birth name, "Richard G. Heck, Jr". This is also true of most of the papers by me listed in the Bibliography.

Chapter 2, "Knowledge and Sense in Frege", began as the first half of a much longer paper that would eventually spawn chapter 3. It was always my intention to return to it and work it up into something more substantial, but at that time my focus was on Frege's *Grundgesetze*, and I never got back to it. Since much of this discussion still seems to me to be valuable, I've included it here, though it is in much the same shape now as it was in 1995.

Chapter 3, "The Sense of Communication", was originally published in *Mind* 104 (1995), pp. 79–106. Thanks to Oxford University Press and the Mind Association for permisson to reprint the paper. Let me offer a special word of thanks here to Steven Gross, who was my first graduate advisee. Much of this paper was born in conversations with him during my first couple years at Harvard.

The Postscript to chapter 3 was originally published as "Communication and Knowledge: Rejoinder to Byrne and Thau", in *Mind* 105 (1996), pp. 151–6. Thanks to Oxford University Press and the Mind Association for permisson to reprint the paper. Thanks to Alex and Mike for writing their reply. As a look at early drafts would confirm, I benefitted greatly from thinking about it.

Chapter 4, "Do Demonstratives Have Senses?", was originally published in *Philosophers' Imprint* 2 (2002) and was reprinted in *The Philosopher's Annual* 25 (2002). Material from that paper was presented in graduate seminars I gave at Harvard in 1997 and 1998, and talks based upon the paper were presented at Harvard University, Cornell University, the University of Michigan, Yale University, the Massachusetts Institute of Technology, the University of Lisbon, and the University of California at Irvine. I have reason to believe that it was this paper that got me tenure at Harvard—there was a general worry that I was too much of a Frege scholar, something the department did not need—so I am particularly fond of it. Special thanks to Charles Parsons for his support of my work. The Postscript is new.

Chapter 5, "Solving Frege's Puzzle", was originally published in *The Journal of Philosophy* 109 (2012), pp. 132–74. Thanks to the Journal for permission to reprint the paper. The version printed here is significantly longer, containing a great deal of material that had to be omitted from the already lengthy version that was published. (The extended version has been available on my website for some time, and parts of it have been cited.) Talks based upon this paper were presented at the University of Pittsburgh, the University of Cincinnati, the University of Chicago, and Wake Forest University. It took nearly a decade for me to write this paper It began, as I mention at one point, as an attempt to argue *for* a broadly Fregean account of propositional attitudes. What kept me from finishing it was that there was always this one objection I couldn't quite answer. I eventually decided the objection was a good one. There's a lesson there.

The Postscript to chapter 5, "In Defense of Formal Relationism", was originally published in *Thought* 3 (2014), pp. 243–50. Thanks to the Philosophy Documentation Center for permission to reprint the paper. Thanks to Mahrad Almotahari, as well, for his attention to my work.

Chapter 6, "Sense as Mode of Representation", is entirely new. It was mostly written in 2018, specifically for this book, as a kind of centerpiece. (I can only hope that it lives up to that billing.) Many of the ideas in this paper go back to a series of discussions that Jason Stanley and I had with Ned Block and Bob Stalnaker (mostly by email)—philosophy doubles—when they were writing their paper "Conceptual Analysis, Dualism, and the Explanatory Gap" (Block and Stalnaker, 1999). (Jason tells me he still has those emails.) I had a similar series of discussions with Jim Pryor when he and Alex Byrne were writing their paper "Bad Intensions" (Byrne

and Pryor, 2006). Special thanks to Jason, Ned, Bob, and Jim for all these discussions.

Talks based upon this material were presented at a conference on the Nature of Representation, at the University of Leeds, in June 2016, and at a conference on Relationism at the University of Illinois at Chicago, in September 2016. Thanks to Robbie Williams, whose ERC project on The Nature of Representation funded the visit to Leeds, and to Aidan Gray, whose fellowship at UIC's Institute for the Humanities funded the trip to Chicago. Let me add a special word of thanks here to Colin McGinn for introducing me to *Varieties of Reference* when I worked with him as a B. Phil. student at Oxford, in Michaelmas Term 1985. It was what everyone was reading in Oxford then, so Colin recommended it. I had no idea then how much time I'd end up spending with Evans's book. My copy is pretty tattered.

Chapter 7, "Chalmers on Analyticity and A Priority", is also new. It began as a short section of chapter 6, then morphed into a lengthy digression. While questions about a prioirity are obviously relevant to the question whether sense is best understood as a condition on reference—the subject of section 6.2—the issues are of independent interest, so, ultimately, it seemed as if the paper was best on its own. I tried to get it published, but it got rejected because, or so I was told, it was about Quine, and yet it contained very little discussion of Quine. It's not a paper on Quine!

Chapter 8, "The Composition of Thoughts", was written with Robert May, with whom I've now written several papers on Frege. It was originally published in *Noûs* 45 (2011), pp. 126–66. Thanks to John Wiley and Sons for permission to reprint the paper. It was presented as the Gareth Evans Memorial Lecture at Oxford University, in May 2006, where Robert joined me on stage for the discussion. It was also presented at Brandeis University (by me), at Yale University (by me and Robert), and at Stanford University and the first Semantics and Philosophy in Europe conference (by Robert). Some of these ideas also appear in Heck and May (2006), though in a somewhat different, and less satisfactory, form.

Chapter 9, "Intuition and the Substitution Argument", was originally published in *Analytic Philosophy* 55 (2014), pp. 1–30. Thanks to John Wiley and Sons for permission to reprint the paper. It was presented in lectures at Duke University and at the *Analytic Philosophy* Symposium at the University of Texas. The Postscript is new.

Chapter 10, "Speaker's Reference, Semantic Reference, and Intuition", was originally published in *Review of Philosophy and Psychology* 9 (2018), pp. 251–69. Thanks to Springer Nature for permission to reprint the paper. Talks based upon it were presented at Columbia University, at the University of California at Davis, and as the 2017 Michael S. Goodman '74 Memorial Lecture at the Department of Cognitive, Linguistic & Psychological Sciences, at Brown University. I have removed an appendix in which the details of a small experiment were reported; it is of no continuing

interest, so far as I can see. In its place, I have restored some material from earlier drafts of the paper that discussed the so-called 'expertise' response to experiments like the one on which I'm focused, and I have adjusted the concluding section to reflect its presence. The new material is in section 10.4. The Postscript is again new.

1

Overview

1.1 Frege's Three Puzzles

For all that 'Frege's Puzzle' has been discussed in philosophy, you'd think there'd be agreement about what the puzzle is. In fact, however, there is not. There are at least three different 'puzzles' that go by that name, and they are not always clearly distinguished.

1.1.1 A Puzzle About Attitude Ascriptions

First, there is a puzzle about the *attribution of propositional attitudes*. Here, the focus is on sentences of natural language that are typically used to attribute such attitudes, for example:

(1) Alex believes that George Eliot was a man.

(2) Alex believes that Mary Ann Evans was a man.

The puzzle derives from the fact that George Eliot, the author of such novels as *Middlemarch*, was in fact a woman known as Mary Ann Evans. (Evans adopted the masculine pen-name in an effort to avoid stereotypes associated with women authors in Victorian England.) But even people who know this fact will sometimes assert a statement like (1) while rejecting the corresponding statement like (2).[1] This gives rise to both logical and semantic issues.

First, the logical issue. The logical law known as Leibniz's Law, or the substitution of identicals,[2] tells us that sentences of the form $\ldots a \ldots$ and $a = b$ logically imply the sentence $\ldots b \ldots$ (the result of replacing some, possibly all, occurrences of a in the original sentence with b). Ordinary speakers are aware of this inference pattern and are able to use it in their reasoning. Yet they show no tendency to infer (2) from (1), even if they are aware that George Eliot was Mary Ann Evans. If asked how it is possible for Alex to believe that Eliot was a man but not that Evans was, they will say that Alex does not *know* that Eliot was Evans. But that only raises the same problem again, since the two sentences

[1] By "reject", I do not mean: assert the negation. As we'll see shortly, the case of agnosticism is always the crucial one.

[2] Or yet more formally, the elimination rule for identity.

Modes of Representation: Content, Communication, and Frege. Richard Kimberly Heck, Oxford University Press. DOI: 10.1093/oso/9780198861591.003.0001

(3) Alex knows that George Eliot was George Eliot.

(4) Alex knows that George Eliot was Mary Ann Evans.

are related exactly as (1) and (2) are. So we either have (i) to insist that (2) is true whenever (1) is and explain why our ordinary linguistic practice seems not to agree or else (ii) find some way to block the relevant application of Leibniz's Law.

The semantic challenge—which is the focus of Nathan Salmon's book *Frege's Puzzle* (Salmon, 1986a)—has a similar source. Ordinarily, the truth-value of a sentence containing a proper name depends only upon the reference of that name. But since "George Eliot" and "Mary Ann Evans" have the same reference, swapping one for the other should not change truth-value. Indeed, one might well think that it's *because* names ordinarily contribute only their reference to determination of truth-value that Leibniz's Law holds, when it does, and that if names contribute something other than, or more than, their reference in certain cases, that would at least cast some doubt upon the application of Leibniz's Law in those cases. So we have two choices. We can hold onto the idea that the places where "George Eliot" and "Mary Ann Evans" appear above are, as W. V. O. Quine (1976a) famously put it, "referentially transparent" and try to 'explain away' the apparent conflict with our linguistic practice, or we can try to explain what, besides (other than or as well as) their reference, proper names contribute when they occur in these sorts of positions.

The account just given of (one form of) Frege's Puzzle differs, in an important way, from what one would typically encounter and, indeed, from how I'd have presented the Puzzle some years ago. What is very often said is that there is an 'intuition' that (1) is (or can be) true even when (2) is false, so that the problem is that the logical and semantical defaults lead to 'counter-intuitive' consequences. Like many philosophers nowadays, however, I am deeply suspicious of appeals to 'intuition' in philosophy and regard that term and its cognates as, to borrow from Herman Cappelen (2012, p. 22), a 'verbal virus': Philosophers rarely mean anything very specific by the term, and it is usually unnecessary. It's one of the subtexts of this book that 'intuition' need play no role in discussion of the issues with which I'm concerned here. In this particular case, it seems to me, talk of 'intuitions' obscures what is really at issue, which is a conflict between what certain logical principles would prescribe and our everyday practices of reasoning. Perhaps that's what some or even most people mean when they say that there's a conflict with 'intuition'. If so, fine, but it's better to be explicit what the problem is supposed to be.

1.1.2 A Puzzle About Mental States

The second problem that sometimes goes by the name "Frege's Puzzle" is not about the attribution of mental states but about mental states

themselves. Suppose, for example, that Drew went to school with a boy named "Robert Zimmerman" with whom they have since lost touch. In the years since, they have also heard, and seen in concert, a now famous musician named "Bob Dylan". Then, it would seem, there are two different mental states that Drew might be in:

(5) Believing that Robert Zimmerman is a famous musician.

(6) Believing that Bob Dylan is a famous musician.

That these are distinct mental states is suggested by the fact that they have different causal effects: The former might lead Drew to ask their old friend to perform a song at the class reunion; the latter has no tendency to do so. If that is right, then that raises a question about exactly what it is that Drew believes when they believe that Bob Dylan is a famous musician. You might have thought that this question could be answered by saying (i) whom Drew's belief is about and (ii) what it is that Drew believes about them. But, if the states mentioned are distinct, then that cannot be right. These two statements cannot both be true:

(i) Drew has the belief, of Bob Dylan (i.e., Robert Zimmerman), that he is a famous musician.

(ii) Drew does not have the belief, of Robert Zimmerman (i.e., Bob Dylan), that he is a famous musician.

Note that this is the crucial case. It *is* possible for both (i) and

(iii) Drew has the belief, of Robert Zimmerman (i.e., Bob Dylan) that he is *not* a famous musician.

to be true. If (i) and (iii) are true, then Drew has two beliefs that cannot both be true. That's perhaps an epistemic flaw, but hardly an impossible one. But (i) and (ii) cannot both be true: If (i) and (ii) were both true, then statements of the form p and $\neg p$ would both be—not believed by Drew but—actually true. And that *is* impossible.[3]

It is important to see that this problem is different from the first. It is consistent to hold that there is a difference between the mental states described by (5) and (6) but that the semantics of English prevents this difference from being *literally* reported in the way one might have thought it could be, viz:

(7) Drew does not believe that Robert Zimmerman is a famous musician.

(8) Drew does believe that Bob Dylan is a famous musician.

[3]Neglecting the option of dialetheism, which allows some contradictions to be true. That would be unmotivated in the present context.

This, in fact, is Salmon's view, and that of many other philosophers, too:[4] (7) and (8) cannot both be true, even though what we're *trying* to say when we utter (7) and (8) can be true (i.e., there really is such a difference in the mental states themselves). Here again, philosophers have often been inclined to indict this view on the ground that it is 'counter-intuitive', but I myself would regard that as a weak objection. A better question is whether it is really plausible that the language we use to talk about mental states should make it so difficult to talk about mental states, given the importance to us, as social creatures, of other people's states of mind.

1.1.3 Frege's Real Puzzle

Although both of the puzzles just described are mentioned in Frege's great paper "On Sense and Reference", neither of them is the puzzle with which the paper is most fundamentally concerned. Frege's Real Puzzle, as I'll call it, is not the second puzzle, the one about mental states, because Frege's Real Puzzle is clearly concerned with language. And it is not the first puzzle, concerned with attribution, because attribution is simply not what is under consideration in the opening pages of "On Sense and Reference". Sustained discussion of what Frege calls "abstract noun clause[s], introduced by 'that'" occurs only twelve pages into the paper (Frege, 1984h, opp. 37ff.), as part of Frege's defense of his claim that sentences refer to their truth-values.[5] What then is Frege's Real Puzzle?

It's not my intention to go deep into the scholarly issues here,[6] so let me instead simply outline my reading of Frege's discussion. What Frege is arguing concerns pairs of *simple* sentences such as:

(9) Robert Zimmerman is a famous musician.

(10) Bob Dylan is a famous musician.

And his claim is that these *simple* sentences—sentences that do not contain attitude verbs—have (or can have)[7] different 'contents', despite the fact that the names "Robert Zimmerman" and "Bob Dylan" refer to the same person.[8] So Frege's claim in this case is parallel to the one about

[4] For some references, see chapter 9.

[5] Frege does mention "indirect speech" earlier (Frege, 1984h, op. 28), three pages in, introducing the notion of 'indirect' reference. But he does not use claims about attributions to argue for the distinction between sense and reference.

[6] For discussion of those, see Heck (2003) and Heck and May (2006). Some of these surface in chapters 2 and 8.

[7] Frege is prepared to allow that names that are spelled and pronounced differently *can* have the same sense. I'll omit this qualification below.

[8] I talk of 'the' names here for convenience. I am not entirely sure what, if any, difference it makes for these issues whether one thinks that there is a single name "Robert Zimmerman" that many people share or whether one thinks that there are many names "Robert Zimmerman", spelled and pronounced alike, that different people have. I'm inclined to think that it makes no genuine difference, but I do not have any real argument for that claim.

mental states: The 'content' of a subject–predicate sentence is not determined simply by (i) which person (or object) something is being said about and (ii) what property is being attributed to them. In that respect, what a name contributes to determining the 'content' of even a simple sentence containing it is not just its reference but something else as well. Frege invites us to call this extra feature the name's "sense".

As is well known, the example with which Frege begins "On Sense and Reference" concerns identity-statements, such as:

(11) Bob Dylan is Bob Dylan.

(12) Bob Dylan is Robert Zimmerman.

Elsewhere, however, he makes it clear that he understands the puzzle about identity as an especially striking special case of the more general phenomenon illustrated by (9) and (10) (Frege, 1984d, op. 14).[9,10] The cases involving identity-statements have special features—that (11) is 'trivial' or 'uninformative', for example—that are potentially misleading, so I'll focus in what follows on the more general phenomenon.

I have scare-quoted uses of the term "content" because Frege himself does not speak quite this way. In earlier writings—in particular, in his first logical treatise, *Begriffsschrift*—Frege had spoken of the "conceptual content" of a sentence as being that part of its content, in some more general sense, that is relevant to its role in logical inference (Frege, 1967, §3). Later, he tells us that the earlier notion of conceptual content has been "split" into the dual notions of sense and reference (Frege, 2013, v. I, p. x). And Frege does speak, in "On Sense and Reference", of the "Thought" that a sentence "contains" (Frege, 1984h, op. 32), and he says that a sentence like (12) "contains actual knowledge" (Frege, 1984h, op. 26), as opposed to

[9]For what I regard as a conclusive defense of this claim, see Heck (2003, §II). That is not to say that Frege does not have good reason to speak about identity-statements here. He does: He needs, for a variety of reasons, to defend the claim that identity is, metaphysically and semantically speaking, a relation between *objects* (between an object and itself), not between *names* of objects. See May (2001) and Heck (2019, §18.6) for discussion.

[10]I am not persuaded by the arguments of Unnsteinsson (2019) that Frege's Puzzle is "about" identity. It may be true that it is rational to believe (10) but to reject (9) only if one does not believe (12)—surely no one ever denied that—but I simply fail to see why this matters. And it certainly isn't true that one can believe (10) but not (9) only if one *dis*believes (12). It is simply false, then, that "the puzzle only arises if identity or something that presupposes it is [present] in the language" (Unnsteinsson, 2019, p. 632). I did not mention either of these in presenting the puzzle. That is: The puzzle does not depend upon identity's even being in the language; nor does it depend upon the agent's being able to think meta-linguistic thoughts about co-reference. I would also regard it as a reductio of any view if it implies that people who do not know whether two names co-refer cannot be "fully competent users" of those names (Unnsteinsson, 2019, p. 636). (See section 5.1 for some relevant discussion.) For that reason, I do not see that Unnsteinsson has shown that a 'limited' solution, that focuses only upon identity-statements, is really available. Indeed, the main problem with such 'limited' solutions is that they tend not to generalize to cases not involving identity, or to do so only in ways that are implausible (Heck, 2003, pp. 89ff).

(11), which Frege regards as a triviality. But none of this really tells us what 'content' is.

We can make progress by noting that Frege does insist that the sense of a name is a *linguistic* feature of that name:[11] part, as we might say, of its meaning, though Frege himself would not have put it that way.[12] So the question becomes: Why does Frege regard the sense of a name as part of its meaning? And we can make further progress if we remember that the claim that names have sense, as well as reference, is really a claim about what names contribute to the 'contents' of simple sentences containing them. That is, the more fundamental claim is that, e.g., (9) and (10) have different 'contents' or, again, meanings. So the question we really need to answer is: Why might Frege think that (9) and (10) have different meanings?

Here, we do not have much to go on. But Frege emphasizes in "On Sense and Reference", repeatedly, that senses are supposed to be shareable. What most fundamentally distinguishes senses from what Frege calls "ideas" is that the latter are private, like mental images, whereas a sense "may be the property of many people". Frege goes on to remark that "... one can hardly deny that mankind has a common store of thoughts which is transmitted from one generation to another" (Frege, 1984h, op. 29). Here, Frege explicitly ties his insistence upon shareability to the use of language, which is the medium through which knowledge is transmitted from one person to another, both within and across generations.

In these remarks, Frege also connects his notion of sense to his notion of a "Thought".[13,14] A Thought, Frege tells us, is "not the subjective performance of thinking but its objective content, which is capable of being the common property of several thinkers" (Frege, 1984h, op. 32, fn. 7). Thoughts, that is to say, are the contents of 'thoughts' in a different sense, that is, of propositional attitudes, such as belief. Frege's idea is that language is used (among other things) to communicate Thoughts from one speaker to another. For example, if I want my students to know that Bertrand Russell taught at Cambridge, I can utter the sentence "Bertrand Russell taught at Cambridge", and, if all goes well, they will come to know, just as I do, that Bertrand Russell taught at Cambridge. Frege's question is: How does that happen? What is it about the noises I make that leads my students to form the specific belief they do: the belief Russell taught at Cambridge rather than, say, that Bob Dylan was born in Minnesota?

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[11] I have in mind here his remark that "The sense of a proper name is grasped by everybody who is sufficiently familiar with the language or totality of designations to which it belongs ..." (Frege, 1984h, op. 27), which I take to mean: by everyone who is a competent speaker of that language. Dummett (1978a, p. 130) is very explicit about this point.

[12] Frege uses the German word for "meaning" (i.e., *Bedeutung*) to mean *reference*. This terminological choice was profoundly unfortunate.

[13] I shall capitalize the term as a reminder that I'm using it in Frege's technical sense.

[14] Perhaps the best discussion of the relation between the cognitive and linguistic aspects of sense is Burge (2005c).

And if, indeed, language is used to transmit knowledge, how is it that my saying "Bertrand Russell taught at Cambridge" puts my students in a position to *know* that Russell taught at Cambridge but not that Dylan was born in Minnesota? Why, indeed, does it put them in a position to learn nothing but that Russell taught at Cambridge?[15]

Frege's answer is that the Thought I want to communicate is, in effect, encoded in the language I use.[16] More precisely: The content of the sentence I utter is the very Thought I am trying to communicate; in understanding my utterance, the students 'grasp' that very Thought. This is what Frege means when he says that an "assertoric sentence . . . contains a Thought". It is also what Frege means when he says that the sense of a sentence *is* a Thought (Frege, 1984h, op. 32).[17] To put it differently: We can, as strictly and literally as you like, *say* what we *believe*.[18] It should be obvious why this picture—which, in chapter 4, I call the "Naïve Conception of Communication"—is so attractive.

As I am reading Frege, then, his argument that names have sense as well as reference is best summarized in this passage from "Function and Concept":[19]

> If we say "The Evening Star is a planet with a shorter period of revolution than the Earth", the thought we express is other than in the sentence "The Morning Star is a planet with a shorter period of revolution than the Earth"; for somebody who does not know that the Morning Star is the Evening Star might regard one as true and the other as false. . . . We must distinguish between sense and reference. "The Evening Star" and "The Morning Star" have the same reference . . . ; but they have not the same sense; consequently, "The Evening Star is a planet" and "The Morning Star is a planet" have the same reference [i.e., the same truth-value], but have not the same sense. (Frege, 1984d, op. 14, second example changed)

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[15]Of course, given that they do come to know that Russell taught at Cambridge, there is no limit to what else they might come to know by inference. That, of course, will depend upon what else they know. But it seems as if there is one thing they can come to know no matter what else they know. Moreover, it is knowing that thing that allows them to come to know other things.

[16]I do not think this is quite what Dummett (1989, p. 192) calls the "code theory of language". That theory is supposed to be committed to the idea that "we must be capable of having naked thoughts . . . devoid of linguistic or other representational clothing". The view I'm sketching need not endorse that claim.

[17]It's important to see that this is not a terminological stipulation: The term "Thought", for Frege, does not just mean *sense of a sentence*. Rather, Frege is making a substantial claim: that the very same thing that can be the content of a mental state is fit also to be the content of a sentence (or utterance). Jason Stanley once called this "Frege's Thesis", on analogy with Church's Thesis.

[18]My own appreciation of this way of putting the point is due to Bob Stalnaker. In his hands, it helps drive a very coarse-grained conception of belief (since, he thinks, what we *say* is also coarse-grained). In Frege's, it drives a fine-grained conception of what we say (since what we *believe* is fine-grained).

[19]The Morning Star and the Evening Star are the brightest celestial bodies visible in the morning and evening, respectively, other than the Moon. As it happens, they are both Venus, though this was not known to the ancient Babylonians. Folklore has it that the identity was discovered by Pythagoras, who knew them as "Phosphorus" and "Hesperus", respectively.

Simplifying the example, here is the argument as I understand it. The first sentence contains three claims:

1. The sentence "The Evening Star is a planet" expresses a Thought, namely, that the Evening Star is a planet.

2. The sentence "The Morning Star is a planet" expresses a Thought, namely, that the Morning Star is a planet.

3. The Thought that the Evening Star is a planet is different from the Thought that the Morning Star is a planet.

From which it follows that:

4. The sentences "The Evening Star is a planet" and "The Morning Star is a planet" express different Thoughts.

Since the sense of a sentence just is the Thought it expresses, we have:

5. The sentences "The Evening Star is a planet" and "The Morning Star is a planet" have different senses.

The conclusion:

6. The names "The Evening Star" and "The Morning Star" have different senses.

then follows from (5) and Frege's compositional understanding of the senses of sub-sentential expressions: The sense of the whole is determined by the senses of the parts (Frege, 2013, v. I, §32). Since the only difference between the sentences is what names occur in them, those names must have different senses.

Frege does not really give an argument for (3), other than to observe that someone might "regard the one as true and the other as false"; that is, he is claiming that someone might believe the Thought that the Evening Star is a planet but not believe the Thought that the Morning Star is a planet.[20] So, in effect, the third premise connects Frege's Real Puzzle to the second puzzle described above, the one about mental states, which thus lies very much in the background of Frege's discussion. In effect, what Frege is proposing to do is to 'lift' the claim that there can be a difference of *mental* content even when there is no difference in reference to the conclusion that there can be a difference of *linguistic* content under the same condition.

The crucial premises, therefore, turn out to be (1) and (2) or, more generally, the claim that sentences express Thoughts, in the sense that the meaning, or content, of a sentence is a Thought. If that's right, the

[20] Frege puts the point in terms of belief and disbelief (i.e., belief in the negation), but we can help him out a bit.

crucial question is what there is to be said on behalf of that claim: Why should we think that utterances express Thoughts?

Most of this book is concerned with these three puzzles. Chapters 2, 3, and 4 are all concerned with what I've been calling Frege's Real Puzzle. They attempt to reconstruct Frege's argument and, in effect, to justify his identification of the sense of a sentence with the Thought it expresses. In the end, I do not think that identification can be maintained. What's surprising is how little that really affects Frege's conclusion.

Chapters 5, 6, and 7 are concerned with the puzzle about mental states. Chapter 5 argues that we should not follow Frege here: We do *not* have to regard Alex's belief that George Eliot was a man as having a different content from Alex's (potential) belief that Mary Ann Evans was a man in order to explain their different roles in Alex's psychology. Chapter 6 considers in some detail various proposals regarding how we should think about the notion of sense itself, with a particular focus on a suggestion made by Gareth Evans. I argue that, while it may yet be possible to think of sense as Evans suggests, doing so means abandoning one of Frege's most central claims about sense: that it is an aspect of *representational* content. Chapter 7 argues against one motivation some authors have had for wanting a notion of sense: to secure certain allegedly *a priori* truths. More precisely, I argue that an argument due to David Chalmers (who also features in chapter 6) does not and cannot show that there are any truths of meaning. If not, then sense is not needed to secure them.

One thing you will not find in this book is any sustained discussion of the 'metaphysics' of sense, that is, of the question what senses 'really are'. Some authors, such as Chalmers (2002, esp. §3), take this to be one of the most pressing questions a Fregean must face. But I agree with Jason Stanley (2011, p. 99), if not for his reasons (see p. 254 below), that this is not a serious issue. It is, to some extent, the burden of chapter 6 to explain why not.

But there is an issue that is sometimes cast in metaphysical terms that no account of sense can postpone indefinitely: How precisely do, say, the sense of a name and the sense of a predicate combine to form the sense of a sentence? Chapter 8, which was written with Robert May, addresses this question, primarily through an investigation of Frege's own various attempts to answer it. This chapter is by far the most scholarly in the book, but, to my mind, it convincingly demonstrates the value of such work for the study of contemporary issues.

Chapter 9 is concerned with the puzzle about attribution. Its ostensible focus is an important and much discussed argument, due to Jennifer Saul, against broadly Fregean resolutions of that form of the puzzle. At a deeper level, though, what chapter 9 argues is that 'intuition' need not play, and never should have played, any significant role in discussions of this puzzle, thus contributing, by way of a case study, to the literature

on philosophical methodology. Chapter 10 continues that theme, arguing, among other things, that Saul Kripke's arguments against descriptivism do not depend upon appeals to 'intuition' either.

In the remaining sections of this Introduction, I'll highlight some of the themes in these chapters and attempt to explain how they complement each other.

1.2 The Puzzle About Attribution

I do not attempt here to offer a semantics for attitude attributions. That is beyond my capabilities. I attempt only to show that Frege was right about the basic facts: It *is* possible, for example, for

(1) Alex believes that George Eliot was a man.

to be true while

(2) Alex believes that Mary Ann Evans was a man.

is false. What's new in chapter 9 is the argument for this claim.

One way to approach that argument is to consider a very short argument that one might be tempted to give instead.[21] Those who would insist that (1) and (2) must have the same truth-value nonetheless tend to agree with Frege that it is possible for someone to believe that George Eliot was a man without believing that Mary Ann Evans was a man—i.e., they agree that there can be a *psychological* difference of the sort that the puzzle about mental states concerns. But, the thought would be:

(13) "Alex believes that Mary Ann Evans was a man" is true iff Alex believes that Mary Ann Evans was a man.

So the facts about the truth-conditions of belief-attributions simply have to track the facts about belief itself.

In chapter 9, I respond that the view against which this argument is directed is, in effect, that "believes" is ambiguous between an 'ordinary' reading and a 'scientific' reading and that (13) is only true when "believes" is disambiguated the same way both times (see p. 320). But, while that's right as far as it goes (see Stalnaker, 2012, p. 756), it can also be misleading.

There are plenty of cases in which everyday concepts are reconstructed for scientific purposes in ways that do not necessarily match their ordinary use. Consider, for example, the scientific distinction between heat and temperature. I doubt that has any clear analogue in ordinary language, though scientists do borrow words from ordinary language for the distinction they need to make. But a better example, for our purposes, is the

[21] Stanley (2011, pp. 144–5) gives a similar argument in a different but not entirely unrelated context.

distinction between fruits and vegetables. We're all familiar with people who try to demonstrate how learned they are by insisting that tomatos are not vegetables but fruits. A fruit, they tell us, is the "fleshy or dry ripened ovary of a flowering plant, enclosing the seed or seeds" (Encyclopedia Brittanica), and that's exactly what tomatos are. Of course, they're right as far as the *botanical* notion of a fruit is concerned. Their mistake is to think that the ordinary use of the term "fruit" must precisely track the scientific one. One might worry that rejecting this claim means rejecting the insights of Hilary Putnam's "The Meaning of 'Meaning'" (Putnam, 1975b).[22] But that is just not so. The word "fruit" can perfectly well be ambiguous (or polysemous), having both botanical and culinary, or horticultural, meanings (as the Supreme Court of the United States held in *Nix v. Hedden* in 1893).[23]

In my earliest discussion of these matters, I remark that "the problem does not only concern intuitions about belief reports . . . but the status of everyday explanations of behavior" (p. 63 below).[24] The key word here is "everyday". What makes it plausible that "fruit" is ambiguous is the fact that the difference between apples and oranges, on the one hand, and tomatos and snap peas, on the other, *matters* in everyday life—when one is cooking, for example. So one would expect us to have words to express that difference, and there is no reason the words "fruit" and "vegetable" cannot be the words we use to express it. The fact that these words cross-classify the corresponding botanical categories may sometimes be a source of confusion, but we gave up on the search for a logically perfect language a long time ago.

What I above called the 'scientific' notion of belief turns out, then, to be less like the botanical notion of a fruit than it is like the culinary notion. The distinction between believing that George Eliot was a man and believing that Mary Ann Evans was a man is one that ordinary speakers

[22]For example, one might worry that, if we allow such a divergence, then even "water" will be subject to ambiguity. But even if "water" doesn't mean, in ordinary usage, what a chemist might take it to mean (Leslie, 2013), it doesn't follow that the chemical facts about a substance are irrelevant to whether it counts as 'water' in the ordinary sense. If "water" is marked as a natural kind term (Kuhn, 1977)—one fit for a certain kind of explanatory work—then that gives us reason to treat external circumstances as relevant to the determination of its reference in a way that they are not relevant to the determination of the reference of "pencil", which is not a kind term but a functional or artifactual one.

[23]This is one of many points missed by Byrne (2020). If positive evidence is wanted that "woman" has a social meaning as well as a biological one, one might look to words for familial relations, such as "father" and "sister", which clearly have both meanings. My niece and nephew are brother and sister, and my brother is their father, even though they are adopted and have different *biological* parents. The fact that young children use such terms almost exclusively with social meanings (Carey, 1988) is additional evidence, though of course not conclusive evidence, that the social meanings persist in adult language. I've discussed a similar point elsewhere (Heck, 2006a, pp. 84–5), though for quite different reasons.

[24]I additionally remark: "This is the best answer to Salmon", citing *Frege's Puzzle*. So I already had in mind then something like the argument of chapter 9, though only in broad outline. But I'm not sure I really understood then how best to draw the distinction between 'everyday' and 'scientific' explanations of behavior, which is crucial.

ordinarily draw: Frege cases are well known to ordinary speakers; the very notion of a 'disguise', which even children understand, generates Frege cases (since people *do not know* that *that* person (the one in disguise) is really So-And-So). So the 'scientific' notion of belief is mislabeled, if that adjective is meant to signal an analogy with the botanical notion of a fruit. There might well be significant differences between the everyday notion of belief and some putatively 'scientific' notion, but the kind of divergence that Russellians claim to find is not obviously one of them.

That is not, however, enough to rehabilitate the 'very short argument' considered above. It's certainly possible for someone to hold that, although ordinary speakers do distinguish between the 'belief' that George Eliot was a man and the 'belief' that Mary Ann Evans was a man, the semantics of complement clauses prohibits them from expressing that difference literally, namely, by uttering:

(14) Alex believes that George Eliot was a man but not that Mary Ann Evans was a man.

But the fact of the matter—and I take this to be agreed on all sides—is that ordinary speakers not only draw this distinction but draw it in precisely these terms: (14) is exactly the kind of thing that ordinary speakers would say if they were asked, for example, why Alex refers to George Eliot but not Mary Ann Evans as "he". That already makes trouble for Russellianism, though of course there are many moves still to be made at this point.

The argument I have just sketched is importantly different from the argument one usually encounters. What people usually say is that we have an 'intuition' that (1) can be true even though (2) is false, so that Russellianism is forced to deny or 'explain away' this intuition. But this is not the real issue. The real issue is that Russellians leave ordinary speakers unable literally to express a certain difference between mental states, one that we all agree ordinary speakers recognize, not only by uttering (14) but by uttering anything of the form:

(15) Alex VERBs that George Eliot was a man but not that Mary Ann Evans was a man.

According to Russellians, the clauses "that George Eliot was a man" and "that Mary Ann Evans was a man" must have the same reference, so it is irrelevant what verb occurs in (15). And that makes it difficult to see how ordinary speakers can express this difference at all. The only ways out are (i) to insist that, while this difference cannot be 'expressed' in natural language, it can be pragmatically conveyed or (ii) to find some other way in which the difference might be expressed. Most of the work in chapter 9 consists in arguing against these two options. But there is one option I do not really consider, which has since been explored by Mark McCullagh (2017). I address it in section 9.A.

1.3 The Puzzle About Mental States

Consider this inference:

> Mark Twain wrote many novels.
>
> Mark Twain was a riverboat captain.
>
> So, someone who wrote many novels was a riverboat captain.

Contrast it with this inference:

> Mark Twain wrote many novels.
>
> Samuel Clemens was a riverboat captain.
>
> So, someone who wrote many novels was a riverboat captain.

These inferences are logically different: The former is valid; the latter is not. But the inferences are also psychologically different: A person can, or so it would seem, believe the premises of the latter inference but not believe the premises of the former inference and so not be disposed to infer the common conclusion of these inferences. But that would be impossible if beliefs were individuated by their object and the property ascribed to that object, since then believing the premises of the latter inference would, *ipso facto*, be believing the premises of the former.

Moreover, this form of Frege's Puzzle has a normative dimension as well as a psychological one: It's not just that people who believe the premises of the two inferences will in fact be disposed to draw different inferences; there will also be different inferences that they are justified in drawing. You cannot come to know the conclusion of the second inference by inferring it from the premises of that inference (alone, i.e., without an extra identity premise),[25] whereas you can come to know the conclusion of the first inference by inferring it from the premises of that inference. Similarly for justified belief and other related notions.

This also allows us to see, as emphasized by Imogen Dickie and Gurprett Rattan (2010), that Frege's Puzzle does not just concern differences between beliefs but also similarities:[26] To explain the facts just mentioned, we need to explain not just what the difference is between believing that Twain was F and believing that Clemens was F; we also need to explain in what sense the belief that Twain was F is 'logically connected' to the belief that Twain was G, but not to the belief that Clemens was G (without an identity premise). It's here, therefore, that we see why Frege's Puzzle mattered so much to Frege, whose work was, almost exclusively, concerned with the foundations of logic: This special case, concerning inference,

[25] As is now well known, we cannot, quite generally, require an identity premise in such cases. That would lead immediately to a regress. (See p. 168 below.) So one way to formulate the question this form of the Puzzle raises is: When can we forgo the identity premise, and when is it required? What makes for that difference?

[26] Schroeter (2007, p. 600, fn. 2) makes the same point, but only in a footnote.

shows that Frege's Puzzle is, among other things, a puzzle about logical inference.[27]

Frege's own solution, of course, was to introduce the notion of sense: It's because beliefs are individuated by *senses*, rather than by references, that it is possible to believe that Clemens was F but not that Twain was F. But, just as important, the reason the former inference is a good one is that the belief that Twain wrote many novels 'involves' the same sense—the same 'way of thinking' of Twain—as the belief that Twain was a riverboat captain. As I put it below, for Frege, "sameness of sense is the standard by which we judge whether an argument equivocates" (p. 164).

For Frege, then, whether two beliefs[28] are 'logically connected'—or, as it is now typically put, 'coordinated'—is determined by facts about the contents of those two beliefs, as they are in themselves: We look at those contents and see if they contain the same sense. What distinguishes the view defended in chapter 5 from Frege's is that it rejects the claim that coordination is determined by content: You cannot tell, just by looking at the contents of two beliefs, whether they are coordinated. Rather, whether two beliefs are, as I put it in the chapter, "formally related" depends upon something else about them besides just their content.

This kind of view is nowadays known as 'Relationism', which is said to come in two forms: Semantic Relationism, which takes its name from Kit Fine's book by that title (Fine, 2007) and Formal Relationism, so dubbed by Mahrad Almotahari (2013), and of which chapter 5 is meant to be a paradigmatic instance.[29] The difference between these is supposed to concern how coordination is explained. Here is how Aidan Gray characterizes the difference in a survey article on Relationism:[30]

Formal Relationism The cognitive significance of a representation is determined by its referential content *and* the formal relations that hold between the vehicles of that content and other representational vehicles. (Gray, 2017, p. 9, emphasis original)

Semantic Relationism Propositional content is irreducibly relational. The cognitive significance of a representation is determined by its referential content and semantic relations that hold among elements of that content. (Gray, 2017, p. 11)

[27] See p. 169 below. On the other hand, it's also important to see that the puzzle is not just one about validity but about what we might call 'logical intelligibility'. See p. 168.

[28] As I emphasize in chapter 5, and as is well known, Frege's Puzzle does not just arise for beliefs but for other mental states, too. But I'll stick to beliefs here, as is common.

[29] This difference is noted (or at least foreshadowed) in the chapter itself (see p. 189).

[30] Gray's article gives an excellent discussion of the history of Formal Relationism and contains citations of other work in the area. Let me mention especially Pryor (2016). Schroeter (2007, 2012) has also written extensively on this topic. There is much in her work that is deeply insightful, though her emphasis on 'commonsense' standards and 'intuitive' judgments shapes her discussion in ways that I (and, I suspect, many of her targets) would reject.

I now think, though, that there is less to this difference than it might at first seem—or, perhaps better, that, if there is a difference, it is a different difference, and one that does not have much to do with Frege's Puzzle but with larger issues about the nature of the mind.[31]

First of all, Gray claims that Formal Relationism "must reject the attractive idea that rationalizing explanation is *intentional explanation*", on the ground that 'rationalizing explanation' must "appeal[] both to semantic and nonsemantic properties of representations" (Gray, 2017, p. 9, emphasis original). Semantic Relationism is meant to avoid this consequence by positing "semantic relations that hold among elements of . . . content[s]" rather than between vehicles of content. But the view defended in chapter 5 *does* posit semantic relations among elements of contents.[32] Here, for example, is what I suggest as a model for explanations of the sort with which we are presently concerned:[33]

> Fred had a belief b_1 with the content $<$Clemens, $F>$; Fred also had a belief b_2 with the content $<$Clemens, $G>$; these beliefs were formally related *via* their respective first terms [i.e., the first terms of their contents]. He was therefore able to infer the belief with the content $<$Clemens, $F \wedge G>$, where this belief is formally related to b_1 and to b_2 *via* their first terms. (p. 184 below)

No mention is made here of non-semantic properties of representations, or of vehicles of content, or what have you. What are mentioned are 'formal' relations among the contents of Fred's beliefs.[34]

It's a fair question what determines which formal relations hold between Fred's beliefs. This is obviously a question everyone must answer, at some point.[35] Nonetheless, what I would regard as the central idea of chapter 5 is that, so far as psychological explanation is concerned, we *do not* have to answer this question but can just treat formal relatedness as a psychological primitive (see p. 170 below). That is the central idea because it is what allows us to answer the objection that the Formal Relationist

[31]The forms of Relationism I'll be discussing in this section concern mental states. Similar issues also arise with respect to language. These will be discussed in section 1.4.

[32]Apologies to Aidan for not mentioning this when I sent him comments on his paper. (It was something of which, at one time at least, I had been clearly aware: See footnote 115 in chapter 5.)

[33]Fred is inferring that Clemens is both F and G from his prior beliefs that Clemens is F and that Clemens is G. I am using the notation $< a, F >$ to refer to the content of the belief that a is F.

[34]The question what role content plays in psychological explanation is obviously in the background here. I am assuming that content does play an important such role. See e.g. Fodor (1990a); Segal and Sober (1991); Egan (1995); Peacocke (1999); Egan (2010); Rescorla (2014) for discussion, as well as section 5.4.3 below.

[35]Schroeter (2007) treats 'mental files' as essentially a programmatic specification of whatever cognitive mechanism underlies appearances of *de jure* co-reference. Some philosophers have supposed, however, that there is more to the notion of a 'file' or 'dossier' than that. I agree with Goodman and Gray (2020) that there is not.

view must reject the claim that psychological explanation is intentional explanation, which I take to be *the* objection to Russellian accounts of belief-content. If we had to invoke non-semantic features of representations in such explanations, as Gray suggests a Formal Relationist will, then that, by my lights, would be fatal. So Formal Relationism, as I understand it, *must* hold that 'rationalizing explanation' appeals not just to the contents of individual mental states but also to relations between the *contents* of those mental states, not to relations between representations.

Let me emphasize that formal relations hold between *beliefs*, that is, between token mental states. This is not inconsistent with saying that the relations hold between the contents of those same mental states. It is, rather, to emphasize that the relations hold between the contents only in so far as they are the contents of particular mental states.[36] That is for the obvious reason that Fred might also believe (or not) that Twain is F, and that belief, though it has the same content as Fred's belief that Clemens is F, will not stand in the same formal relations to his belief that Clemens is G. That, indeed, is the whole point. So there are no formal relations between the *content* $<$Clemens, $F>$ and the *content* $<$Clemens, $G>$, even relative to Fred, but only between those contents regarded as the contents of particular mental states.[37]

It's for this reason, of course, that Semantic Relationism, as Gray characterizes it, is a view about the cognitive significance of *representations*, not just a view about contents. But now it is becoming difficult to see what the difference between Formal and Semantic Relationism really is. Formal Relationism, at least in my version, does hold, as we have seen, that "[t]he cognitive significance of a representation is determined by its referential content and semantic relations that hold among elements of that content", which is how Gray (2017, p. 11) characterizes Semantic Relationism. But, conversely, as we just saw, a Semantic Relationist needs to say that cognitive significance is determined by semantic relations that hold among elements of contents *regarded as* the contents of certain mental states, not between contents *simpliciter*. Now, Gray characterizes Formal Relationism as the view that formal relations hold between *vehicles* of content. Perhaps Semantic Relationists would balk at that claim? But a 'vehicle of content' is just a thing that has content, i.e., a representation, and we have already seen that Semantic Relationists claim, and must claim, that logical (or semantic) relations hold between contents only *qua* contents of certain mental states. Moreover, *something* must explain in virtue of what the contents of Fred's beliefs (*qua* contents of those beliefs) stand in the logical relations they do (i.e., why they are coordinated as they are). If

[36]Thus Gray (2017, p. 4): "When I speak of an element of referential content, I am not speaking about an object *simpliciter* but an object as it appears in the content of a token representation."

[37]I do not regard that way of putting the point as ultimately satisfactory, but I am fresh out of ideas of how better to put it. Perhaps we should just focus on the explanations themselves and abandon the attempt to summarize their flavor.

that is not explained by anything about the contents themselves, what is left other than facts about the mental states themselves?

If there is wiggle room here, it is between a 'mental state' and a 'representation'. If Fred believes that Twain wrote many novels, then there is a trivial sense in which Fred's overall state of mind represents that Twain wrote many novels. But there is also a stronger sense in which someone might want to claim that Fred's belief incorporates a 'representation' that has that content: something we can identify in non-semantic terms, other than as the belief with that content. That is not just to say that representations have non-semantic as well as semantic features (true though that may be), but that representations in this stronger sense can, as I just put it, be identified or specified non-semantically (in principle). Formal Relationism, thought of this way, holds that, while the coordination relations among beliefs are not determined by intrinsic features of their *contents*, they are determined by intrinsic features of the *beliefs themselves*, namely, by intrinsic features of the representations that underlie those beliefs.

The contrast would be with 'distributed' models of mental representation, such as 'neural nets'. The information contained in such a network is not, as in more classical models, naturally thought of as segmented into discrete representations.[38] There may not be anything in the network itself to which one can point and say, "That thing right there is the representation of Twain's having written many novels". Or, if there is, that representation may not have distinguishable parts that represent Twain, on the one hand, and his having written many novels, on the other (Smolensky, 1988).[39] If not, then it may not be possible to explain the logical relations between Fred's beliefs in terms of properties of the representations that underlie those beliefs, because there may, in the relevant sense, be no such representations (or none with the right kind of structure). The only option, in that case, might be to regard those relations as holding between the contents of those beliefs, which might be a reason to think that Semantic Relationism has fewer empirical commitments than Formal Relationism, because it is compatible with connectionist models whereas Formal Relationism is not.

Recall, however, that all forms of Relationism are committed to the existence of mental representations: They are required because it is only *qua* content of such a representation that contents can be formally related

[38]I put it that way because it can be argued that, in some cases, such models merely *implement* classical architectures (Fodor and Pylyshyn, 1988). I'm neutral here on whether that's right, but see below.

[39]It's perhaps worth emphasizing that syntax, in the relevant sense, is entirely abstract: My reference to 'parts' may not be appropriate. A grid in which the columns represented objects and the rows properties would be syntatically structured in the relevant sense; spatial features of representations could, therefore, count as 'syntactic'. What matters, as Fodor and McLaughlin (1990) emphasize, is whether mental processes are sensitive to the features in question. Compare Rescorla (2009b, pp. 388ff.) on the question what it is for a cognitive map to have geometric structure.

(or not). That makes it less than obvious that Semantic Relationism really is compatible with connectionist models. What would be required to make it so would be a metaphysics of belief (and similar mental states) that was not committed to the existence of appropriately structured mental representations but that allowed us to speak of a given Russellian proposition as the content of *this* belief and also of *this other* belief. Part of what makes it unclear whether such a view is available is the fact that connectionism has often been thought to underwrite eliminativism about mental states as we ordinarily think of them.

Indeed, there are resources here from which one might construct an argument against connectionism (as a theory of cognitive architecture), one that has clear similarities to the well-known 'systematicity challenge' due to Jerry Fodor and Zenon Pylyshyn (1988). Fodor and Pylyshyn argue that connectionist models have a hard time explaining the systematicity and productivity of thought. On a classical model—more precisely, if there is a 'language of thought'—then we have a straightfoward explanation of these features of cognition. Productivity is a consequence of the fact that syntactically complex representations are employed in thinking, say, that Twain was thin and that Hemingway was tall; such representations can be recombined in such a way as to allow one to think that Twain was tall and that Hemingway was thin. Systematicity, in turn, is a consequence of the compositionality of these same representations.

Fodor and Pylyshyn's objection to connectionism is that no such model can explain why thought is productive and systematic unless it amounts to an implementation of a classical model. Unsurprisingly, there have been many replies,[40] but it is not my purpose to evaluate Fodor and Pylyshyn's objection here. What I want to point out is that the phenomenon we have been discussing is of a piece with it.

Suppose that Fred believes that Twain is F and that Twain is G. Fred might never entertain these beliefs together, and he might never have reason to infer from them that someone is both F and G. But, in some sense, it seems clear that Fred is in a position to infer that someone is both F and G, whether or not he ever does so. And, of course, that's nothing specific to Twain. Fred has a lot of beliefs of this same kind, and he has the same inferential capacity in those cases. In other cases, by contrast, he has beliefs with the same Russellian contents but has no tendency at all to draw the corresponding inference. The question that wants asking is what explains this capacity, and what explains its limits. Classical models have at least the beginnings of an answer. Inference, on that model, is formal derivation—that is, a certain kind of manipulation of syntactically structured representations—and the capacity is present when, and only when, the representations themselves bear certain syntactic relations to one another. The question, as in Fodor and Pylyshyn's original argument,

[40] For some early ones, see Smolensky (1988); Clark (1991); Chalmers (1993). For a recent overview, see Buckner and Garson (2019, §7).

is not whether a connectionist network could be trained to exhibit this kind of behavior. The question is whether a connectionist can explain why this kind of logical capacity is universal among mature human adults, and why it has the generality it does.

1.3.1 Structured Propositions

In chapter 8, Robert May and I argue that Fregean Thoughts should be regarded as structured and so not, say, as sets of possible worlds (whether epistemic or metaphysical).[41] We intend this claim both as historical—Frege himself regarded, and was committed to regarding, Thoughts that way—and substantive: We ourselves should regard Fregean thoughts that way. The argument is not the usual one: that sets of worlds collapse cognitively distinct thoughts, though I do take that argument seriously (see section 6.2.4). The argument, rather, is based upon the explanatory role that sense is supposed to play.

To explain how it is possible for Fred to believe that Clemens is F without believing that Twain is F, it is sufficient to claim that these beliefs have different contents, which are finer-grained than (anything determined by) reference. But Frege does not rest with that claim. Rather, Frege takes the constituents of such contents to be similarly fine-grained, and he claims that such beliefs have different contents *because* they contain constituents with different contents. To put the point in terms of language, Frege does not just think that "Clemens is a man" and "Twain is a man" have different senses but also thinks that these two sentences have different senses *because* "Clemens" and "Twain" themselves have different senses.[42]

What May and I observe is that this explanation simply does not work if Fregean thoughts are regarded only as *determined by* the senses of the constituents. If that is how the senses of the parts contribute to the sense of the whole, then the fact that "Clemens" and "Twain" have different senses no more implies that "Clemens is a man" and "Twain is a man" have different senses than the fact that "Venus" and "Mars" have different references implies that "Venus is a planet" and "Mars is a planet" have different references (i.e., truth-values). If, by contrast, Thoughts are composed of (not just from) senses—if the senses of the parts are, as Frege tells us, parts of the sense of the whole (Frege, 2013, v. I, §32)—then the explanation goes through, though more needs to be said to establish that claim.

[41] I remark in footnote 5 of chapter 5 that "I'm no fan of structured Russellian propositions". What I mean there is that the usual accounts of Russellian propositions (such as the sophisticated account developed by King (2007)) leave the question how the parts of such propositions compose unanswered—indeed, unaddressed. (See section 8.4 for discussion. A similar argument has been developed in detail by Pagin (2019).) So it's not the idea that there's some kind of structure in 'propositions' to which I object.

[42] For discussion and references, see pp. 288ff. as well as Heck (2003, pp. 91ff.).

Relationism is also committed to regarding propositions as structured, for I just argued that Relationism must regard coordination relations as holding among elements of contents (*qua* the contents of certain mental states). If that is to be possible, then, obviously, the contents in question must have enough structure for such relations to hold between them. If the contents of beliefs were just sets of worlds, then Twain would not be part of those contents, and there would be nothing for coordination relations to hold between.

In fact, however, there is an even more powerful argument nearby. That argument is developed in some detail in section 5.4.3, but the focus there is on what I call the 'psycho-Fregean' view that the content of a belief is just its truth-value. So let me make more explicit how it applies to the more plausible view—defended by Robert Stalnaker (1984), among others—that the content of a belief is the set of possible worlds in which it is true.[43]

Consider the following beliefs:

(a) that Twain is an author

(b) that Clemens is an author

(c) that Twain is Clemens

(d) that Hesperus is Phosphorus

On the possible worlds view, (a) and (b) have the same content, as do (c) and (d). In the case of (c) and (d), of course, the content would be the set of all possible worlds (since these beliefs are necessarily true). That no more prevents such a theorist from regarding these as distinct beliefs than it prevents a Relationist from doing so. But it is hard to see how one could explain, in terms of relations among these *contents* (conceived as sets of worlds), why someone would be in a position to infer (b) from (a) if they also believe (c) but not if they believe (d).

Now consider the following beliefs:

(e) that Clemens is Dickens

(f) that Dickens is an author

(g) that Clemens is Hawthorne

(h) that Hawthorne is an author

Suppose that Alex believes (a) and (e). Then they are in a position to infer (f). And now there is a new problem: the possible worlds theorist cannot explain why Alex is in a position to infer a belief with the *content* that

[43] In Stalnaker's case, the worlds are metaphysical, but the considerations that follow also apply to views that make use instead of epistemically possible worlds (e.g., Chalmers, 2002), with some adjustments.