

Experimental Pragmatics

How does a listener understand a sarcastic “That was a wonderful speech” when the words point to a positive review? Why do students of introductory logic interpret “Some cabs are yellow” as “Not all cabs are yellow” when the meaning of “some” is compatible with “all”? Pragmatics aims to explain how listeners draw out a speaker’s meaning from utterances, an astonishing feat when one considers that the words in a sentence hardly suffice for fully comprehending what the speaker intended. Given the nature of pragmatics, it is going to take the interdisciplinary firepower of many cognitive sciences – including philosophy, experimental psychology, linguistics, and neuroscience – to fully appreciate this uniquely human ability. In this book, Ira Noveck, a leading pioneer in experimental pragmatics, engagingly walks the reader through the phenomena, the theoretical debates, the experiments, as well as the historical development of this growing academic discipline.

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Experimental Pragmatics

The Making of a Cognitive Science

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In memory of my father, Simon Noveck (1921–2011)

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Preface

I begin the book by describing the contents of a genuine message-in-a-bottle in order to point out that there is a lot more to understanding a communicative act than just sentence decoding. Besides being amusing, analyzing the message's brief sentences is also a useful way to clarify the questions that motivate the research in the book, which can be summarized as follows: What are the cues that allow an interlocutor to gain a deeper (and more informative) understanding of an utterance, and where do such enrichments come from? I then plunge into a range of examples that reveals the extent to which language underdetermines a speaker's intended meaning. The discussion these examples engender leads to my introduction of the field of pragmatics, which includes a summary of the armchair theories that first inspired debate among philosophers as well as a detailed description of Paul Grice's (1967, 1989) seminal theory and the key post-Gricean approaches that followed (Chapters 1 and 2). I add here that I generally adhere to the convention found in linguistic-pragmatic texts in which speakers in illustrative exchanges are female and addressees are male (likewise, I describe experimenters as female and participants as male). To be consistent with my presentation of pragmatics, I provide a brief historical account of experimental psychology and an insider's view concerning the way experimentalists approach their work (Chapters 3–4). My intention behind this foundational presentation is to make the goal of experimental pragmatics rather obvious, which is to test theories of pragmatics as well as explanations of pragmatic phenomena through objective psychological experiments.

I then turn to the book's main task, which is to review key topics in experimental pragmatics. I start with "early" experimental work that began in the mid- to late-1970s in the wake of Grice's William James lectures (Chapter 5). I show how the work from this period employed Gricean principles largely to account for nonlogical responses in reasoning tasks or to investigate quintessential pragmatic phenomena, such as metaphor. I describe the lessons learned from these early attempts as well as why the field did not take off then. Later chapters show how hypotheses and data from this period often seeded more recent investigations.

There is no better way to begin a presentation of current experimental pragmatic work (Chapter 6) than through a review of studies on scalar implicature, whose data have arguably been most responsible for driving the field forward since the turn of the century. I describe how these investigations aim to experimentally isolate the emergence of pragmatically enriched readings of relatively weak terms (e.g., cases in which *some* is clearly understood in an utterance as *some but not all*) by comparing them to situations that apparently prompt minimal – logical or semantic – readings (e.g., cases in which *some* is understood as *some and perhaps all*). I then review the data inspired by “conventional” approaches, which aim to account for scalar implicature outcomes while downplaying the apparatus of Gricean reasoning (Chapter 7). To follow up, I turn to two other pragmatic phenomena that appear to be, or are said to be, similar to scalar implicatures. One concerns the invited inferences linked to conditionals (Chapter 8) and especially *affirmation of the consequent* (this refers to the tendency of participants to accept *p* as true from the premises *if p then q; q*, even though that conclusion is not logically valid). The other (presented in the first third of Chapter 9) concerns the way we refer to objects through adjectival modifications (consider the expression *pass me the tall glass*), which can be a means to simply describe something or a way to pragmatically enrich the situation (i.e., one can use the adjective to imply that there is at least one other glass that is not tall).

The rest of Chapter 9 is devoted to completing a review of experimental work on reference. In the second section of this chapter, I summarize the findings from the clever experiments on infant *pointing* that reveal the extent to which very young humans are communicative beings, despite their lack of verbal skills. In the chapter’s last section, I describe the debates and the data that have arisen around the way adults refer to objects in context. This line of research aims to determine whether or not adults instinctively consider a speaker’s perspective when processing a referential utterance.

I then turn to topics that have been traditionally categorized under “figurative language.” This portion of the book begins by reviewing post-Gricean accounts of metaphor (Chapter 10). The research aims to determine whether the literal meaning of a metaphoric expression plays a role in its processing. To put it another way, do features of heavy machinery figure into *John is a bulldozer* or can these be bypassed altogether? I then turn to irony (Chapter 11) and the rich set of theories that have long been poised to inspire experimental pragmatic research. I point out that ongoing debates in the psychological literature about the speed of irony comprehension (*is the ironic reading of a sentence as fast as its literal reading?*) overshadow another important issue, i.e., the way that Theory of Mind (ToM) (intention-reading) figures into irony comprehension. That said, I aim to address both concerns. Given that figurative language was operationalized in seminal investigations concerning the communicative

difficulties found among those with autism, it made sense that I review the work on autism and pragmatics at this point of the book (Chapter 12). The aim of this research is to determine the extent to which communicative difficulties among those with autism are due to Theory of Mind deficits.

To complete my panorama of experimental pragmatic research (Chapter 13), I describe work concerning five other topics: logical metonymy, metonymy, negation, presupposition, and prosody. Like the book's other more notorious pragmatic phenomena, these topics expose differences between a spoken sentence's literal and extra-literal readings. As always, I discuss how experiments aim to capture the pragmatic import in each.

At the end of the book (Chapter 14), I shed my heretofore objective stance in order to present my own "opinionated conclusions." Along the way, I make reference to an investigative technique used in archeological research – what can be called the wide excavation approach – which enjoins teams of collaborators to progressively and systematically descend at several, critical areas of the same site in order to appreciate the human interactions that took place there. In a similar vein, my own aim as an experimental pragmatist – and as author – has been to dig at several pragmatic sub-sites and increasingly deeper. This way, one can better understand the nature of individual pragmatic phenomena while also comparing them. More generally, one gets to see just how critical intentions are to understanding utterances. I hope to have shown that this approach is indispensable for developing pragmatic theories.

Acknowledgments

The archetypal end product in our line of work is the scientific article. We teach students how to write articles, we come to master making arguments in the limited space these provide, and we aim to place them in the most impactful journals. For over three years, I kept telling myself (and those who would ask) that a scientific article is to a short story what this book is to a novel. While I have become accustomed to writing the short stories of science, I have never written a book-length account. Writing this book has forced me to tap into new resources.

Fortunately, the scientific enterprise behind this book has been underway for over twenty years now, so there has been much to draw on. I am also privileged to have been involved in experimental pragmatics from the beginning and to have had collaborators, colleagues, role models, and students, as well as supportive friends and family, who have given me encouragement throughout. Allow me to describe, from my egocentric perspective and in a roughly historical order, who these people are (while keeping in mind that some characters in this story are recurring), starting with some prehistory.

When I first came to Paris as a gap-year graduate student of reasoning (starting in September 1988) with no plan (other than to support myself as I learned French), I came with one professional address in my pocket – Guy Politzer’s. While I had admired pragmatics from a distance, it was Guy who would properly introduce me to the topic and who would show me how it can impact on reasoning; we even put together a research project on Kahneman and Tversky’s Linda problem while I was there (see Chapter 5, “Early Experimental Pragmatics”). At the end of my stay that year, just after I had given my first talk in French, I met Dan Sperber, who had developed relevance theory with Deirdre Wilson and who was (and remains) fascinated with human reasoning. Dan – as the current book makes obvious – would end up providing some central insights with respect to my own work as well as to experimental pragmatics generally (not to mention the name for the field). Knowing that there was a crew of pragmatists in Paris encouraged me to pursue my own pragmatics-in-reasoning research even when I was not based in France. When I moved permanently to Paris in 1995, we would form a group that Dan dubbed “Le Groupe de la Recherche

sur l'Inférence et la Compréhension Élémentaire" (Le GRICE). Beside Dan and Guy, Le GRICE included Daniel Andler, Jean Baratgin, and Jean-Baptiste van der Henst, with guest appearances from people such as François Recanati and Pierre Jacob (who were both down the hall), Luca Bonatti (who was across town), and others from abroad, such as Sue Carey and Deirdre Wilson (who would spend time in Paris on visits and sabbaticals). Le GRICE ended up being a launching pad for experimental pragmatics (and many other endeavors) and clearly would not have existed if it weren't for Dan.

When I was lucky enough to put together my own lab five years later at the Institut des Sciences Cognitives in Lyon and thanks to the Centre National de la Recherche Scientifique, aka the CNRS, I found myself in a position to do experimental pragmatics full time and to talk to others who were interested in pursuing this line of study. With a grant from the European Science Foundation (ESF), I organized an experimental pragmatics workshop with Dan in Lyon, which allowed us to invite those who supported bringing experimental methods to pragmatics as well as those who had actually put this into practice. This included the late Josie Bernicot, Anne Bezuidenhout, Robyn Carston, Gennaro Chierchia, Billy Clark, Herb Clark, Seana Coulson, Aidan Feeney, Ray Gibbs, Rachel Giora, the late Vittorio Girotto, Sam Glucksberg, Teresa Guasti, Simon Handley, Guy Politzer, Anne Reboul, Tony Sanford, Deirdre Wilson, and Jean-Baptiste van der Henst. This led to a volume that Dan and I edited (Noveck & Sperber, 2004), which would become a modest reference for this fledgling field.

My lab at the Institute also became a real home for a host of students and post-docs on experimental pragmatics. Nausicaa Pouscoulous earned (at least part of) her PhD with me there; and Lewis Bott (another reasoner-cum-pragmatist) carried out his first Post-doctoral research at the Institute (thanks to my first French grant). Over the next fifteen years, experimental pragmatics played an important role in bringing in other PhD students such as Jerome Prado, Coralie Chevallier, Nicola Spotorno, and Tiffany Morisseau, as well as other post-docs such as Edmundo Kronmüller and Diana Mazzarella.

From where I was perched at the Institute, I could see how experimental pragmatics was catching on, especially because the topic of *scalar implicature* (described in Chapters 6 and 7) was capturing the attention of folks across disciplines. Evidence for this was most obvious through the increasing number of workshops and conferences. For example, Gennaro Chierchia, a semanticist, organized a workshop in Milan in 2003 that concerned scalar implicatures. Richard Breheny and Napoleon Katsos – who were writing one of their influential papers on scalars – would go on to organize what I (and many others) consider to be the first proper experimental pragmatics conference (in Cambridge) in 2005. In fact, their format has become the model for what has become a regular biennial conference known as XPrag (since held in Berlin, Lyon, Barcelona, Chicago, and Cologne), with the next one planned for Edinburgh in 2019. This

series of conferences brought to the fore a quartet of XPrag organizers that included Uli Sauerland, Bart Geurts, Richard Breheny, and me. My favorite sentence from the “Guidance Notes for Conference Organisers” (a document that we recently began circulating for each biennial organizer) is: “Ideally, invited speakers are those who have been doing experimental pragmatics (or considering theoretical issues generated by experimentation) without realizing it.” This is the kind of attitude that keeps our doors open.

This quartet expanded somewhat when my proposal for a Research Networking Program (also sponsored by the ESF) was accepted and ran from 2009 to 2013. This project involved finding researchers who shared our vision for experimental pragmatics, along with financial sponsorship from individual European countries. Beside the four of us, who represented Germany, the Netherlands, the United Kingdom, and France, respectively, we succeeded in finding partners in eight other European countries (Bergljot Behrens in Norway, Katarzyna Bromberek-Dyzman in Poland, Anne-Marie Bülow in Denmark, Louise McNally in Spain, Jacques Moeschler in Switzerland, Peter Pagin in Sweden, Josef Perner in Austria, and Walter Schaecken in Belgium). While the program was designed to encourage collaborations across countries, I had also insisted that proposals should include *adversarial collaborations* (see Chapter 7) so that experiments would be sharp and decisive between competing theoretical positions, and this worked out to some extent. The best example of such a partnership – discussed in Chapter 10 – arose between Petra Schumacher and Valentina Bambini. In order to increase the number of proposals, though, we had to drop this condition. Looking back on it now, the best part of the EURO-XPRAG program was that it fostered work from young rising researchers such as Emmanuel Chemla, Chris Cummins, Cat Davies, Judith Degen, Heather Ferguson, Francesca Foppolo, Suzanne Grossman, Napoleon Katsos, Danielle Matthews, Paula Rubio, Ye Tian, Jack Tomlinson, Bob van Tiel, and many others. This was a very satisfying adventure and one that clarified for me how semanticists and pragmatists had much to offer each other.

It was while I was stationed at the CNRS’s center in Jerusalem (Le Centre de Recherche Français à Jérusalem [CRFJ]) for three years (2011–14) that I had the idea of writing this book. I am thankful to my friend Olivier Tourny, who recruited me and convinced me (and my wife, Monica) to leave Lyon to join the CRFJ. Olivier also waited until I had finished my turn as lab director in Lyon before making room for me.

Many of the chapters have profited from notes and slides for classes that I have given on experimental pragmatics over the last six years. The most notable of these were a Utrecht (Netherlands) summer school on the Neuroscience of Communicated Meaning (organized by Jos van Berkum in 2011), a series of classes on experimental pragmatics at the Institute for Advanced Study in Pavia (Italy) (organized by Valentina Bambini in 2012), and a week-long class

in Manizales (Colombia) (organized by María Mercedes Suárez de la Torre) that allowed me to present some of the chapters for the first time (in 2016).

I am also grateful to Uli Sauerland and Petra Schumacher for designating me a Mercator scholar for their own Germany-wide networking program on experimental pragmatics, called XPrag.de, from 2014 to 2017. This has kept me abreast of the extensive (mostly formal) work going on in Germany and allowed me to routinely give talks there. Classes, talks, and discussions have found their way into this book or have at least made me think more carefully about many of the issues raised therein. For example, one class in Berlin concerned the history of psychology and its role in experimental pragmatics, which helped form Chapter 3, while a talk for a workshop devoted to trends in experimental pragmatics informed parts of Chapter 14. The feedback from these exchanges has been extremely useful.

In preparing actual chapters, I have taken advantage of the now worldwide network of experimental pragmatists. Nearly twenty people read a chapter or two. That is, each chapter was vetted by at least two experts, and no expert read more than two. These reviewers were Valentina Bambini, Lewis Bott, Coralie Chevallier, Pierre Jacob, Napoleon Katsos, Mikhail Kissine, Edmundo Kronmüller, Diana Mazzarella, Tiffany Morisseau, Guy Politzer, Nausicaa Pouscoulous, Petra Schumacher, Nicola Sportono, Ye Tian, Ingrid Lossius Falkum, Jean-Baptiste van der Henst, and Bob van Tiel. I am indebted to each of them. While this procedure might have slowed down the process for the publisher, it certainly made the book sharper and reduced its number of potential gaffes. Any remaining errors are of course my own. I am also grateful to Csaba Pléh, a historian of psychology from Budapest, who spent the 2016–17 academic year in Lyon (and who also happened to be the ESF's liaison for the EURO-XPRAG network) – he was the first to read and critique the entire manuscript as a gestalt. The same appreciation goes to an anonymous reviewer.

I have a number of friends and colleagues who have written books (including several who had *just finished* writing one), and their words of advice were much appreciated. This group includes Billy Clark, Ann Demarais, Pierre Jacob, Mikhail Kissine, Monica Martinat, Hugo Mercier, Julien Musolino, Anne Reboul, Emmanuel Sander, Dan Sperber, and Thom Scott-Phillips. I also wish to thank Helen Barton, the coordinating editor from Cambridge University Press, who always addressed my concerns with *politesse*, Emmanuel Niollet, a colleague in Lyon who periodically provided me with some sage advice, and two people, Ruth Brody and Nicolas Petit, who helped with several editorial undertakings in preparing the book. I would also like to acknowledge and thank the many people who unhesitatingly shared their own figures and photographs for the sake of the book: Cat Davies, Kathleen Eberhard, Yi Ting Huang, Boaz Keysar, Tiffany Morisseau, Jack Tomlinson, and Matea Razec.

As many expats know, living in a foreign country (or two) can be disorienting even after twenty-five years. For the last twenty of those, Monica Martinat has been my home. While pragmatics often breaks down in our daily Italo-Anglo-Franco communication, our shared passions – including professional ones – are never misunderstood. Aside from reading parts of the manuscript, Monica has been unceasingly encouraging. I am also grateful that two of our other shared passions, Noemi and Isaac, put great effort into their own writing and could share in this adventure without teasing me too much.

Abbreviations

AC	Affirmation of the Consequent
AQ	Autism quotient
ASD	Autism spectrum disorder
BA	Brodman area
DA	Denial of the Antecedent
EEG	Electroencephalography
ERP	Evoked response potential
fMRI	Functional magnetic resonance imaging
GCI	Generalized conversational implicature
HFA	High-functioning adults with autism
IFG	Inferior frontal gyrus
ITPJ	Left temporal parietal junction
MEG	Magnetoencephalography
MP	Modus ponens
MPFC	Medial prefrontal cortex
MT	Modus tollens
MTurk	Amazon Mechanical Turk
N200	Negative-going ERP component that peaks around 200 milliseconds post-stimulus
N400	Negative-going ERP component that peaks around 400 milliseconds post-stimulus
PC	Precuneus
P300	Positive-going ERP component that peaks around 300 milliseconds post-stimulus
P600	Positive-going ERP component that peaks around 600 milliseconds post-stimulus
rTPJ	Right temporal parietal junction
RLPFC	Rostro-lateral prefrontal cortex
RT	Relevance theory

xxviii List of Abbreviations

SPM	Standard Pragmatic Model
TD	Typically developing
TFA	Time–frequency analysis
ToM	Theory of mind
UBC	Upper-bounded construal