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Corresponding Author:	Napoleon Katsos University of Cambridge Cambridge, UNITED KINGDOM
First Author:	Napoleon Katsos
Order of Authors:	Napoleon Katsos Ema Banerjee Yin Jue Chang Thomas Clark Joe Cowan Thomas R. Williamson Zuzanna Witkowska
Abstract:	
Opposed Reviewers:	

1 Review of **Experimental Pragmatics: The Making of a Cognitive Science** by Ira Noveck, Cambridge
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6 Co-authors (and contact email address):
7
8
9

10 Napoleon Katsos, nk248@cam.ac.uk
11

12 Ema Banerjee, eb678@cam.ac.uk
13

14 Yin Jue Chang, yjc36@cam.ac.uk
15

16 Thomas Clark, thc44@cam.ac.uk
17

18 Joe Cowan, joe-cowan@outlook.com
19

20 Thomas R. Williamson, trw45@cam.ac.uk
21

22 Zuzanna Witkowska, zw328@cam.ac.uk
23
24

25 All affiliated with the Department of Theoretical and Applied Linguistics, University of
26 Cambridge, 9 West Road, CB39DP, Cambridge, UK
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1 Review of **Experimental Pragmatics: The Making of a Cognitive Science** by Ira Noveck, Cambridge
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6 In the past twenty years, the experimental approach to the study of meaning has reached a substantial
7 level of awareness of itself as a sub-discipline at the intersection of linguistics and psychology with
8 connections to neuroscience and philosophy, which have led to a recognisable label, 'experimental
9 pragmatics' or 'XPrag'. A milestone is the first monograph in the discipline, 'Experimental Pragmatics:
10 The Making of a Cognitive Science', by Ira Noveck, a researcher who can be credited perhaps more
11 than anyone with the flourishing of this area. The book does not aim to be a comprehensive textbook,
12 nor is it an in-depth investigation of a few well-chosen case-studies. It is a blend of the two together
13 along with Noveck's autobiographical reflections and insights from his own career in the field. It is a
14 book rich in facts as well as in opinions, as Noveck makes clear at the start and the very end too.
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17 Such a book is difficult to classify within the standard academic genre. The review we are reporting
18 here is also somewhat unusual. We used this monograph as the reading for eight 2-hour-long meetings
19 of a postgraduate seminar 'Experimenting with Meaning' at the University of Cambridge. Our group
20 consisted of Master's students, predominantly with backgrounds in linguistics, and a member of staff
21 specialising in experimental pragmatics. In previous years, members of the seminar would select their
22 own readings for each meeting. In the academic year 2020/2021, we decided to read this one book,
23 from front to back. Early on in the seminar, we agreed that we would write a review of the book along
24 a few criteria: (i) did we feel we gained in knowledge in experimental pragmatics, (ii) did the book help
25 us engage in critical discussion about the theories, methods and research questions in the field, and,
26 (iii) were the chapters clearly written, engaging and stimulating in their presentation? We decided to
27 do this because we could already sense early on that this is an excellent book for a reading group and
28 we wanted to share the experience of using it. We also felt that a more personal volume deserves a
29 more personal, experiential response.
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33 In Chapter 1, Noveck kicks off with the challenge of understanding the meaning of sentences outside
34 their context of use, by relating a genuine message found – as media reported – in a bottle. This
35 engaging example emphasizes that language is 'gappy', in Noveck's own terms, in that so many aspects
36 of word, phrase and sentence meaning require specification in the context of use. The chapter then
37 introduces some of the major sources of 'gappiness' which can be usually found in textbooks in
38 pragmatics. Following this, the chapter offers an overview of the recent history of pragmatics,
39 focussing on Grice and Searle.
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42 Chapter 2 presents the foundations of Grice's theory, as well as the later reactions and departures by
43 neo-Gricean pragmatists, Relevance theorists, Herb Clark's action-based view and grammatical
44 approaches to implicature. All this is described in a way that will be familiar to anyone involved with
45 the field, and will constitute a clear introduction for a novice. Here, as in other parts of the book, the
46 research that motivated Noveck's own journey into experimental pragmatics is described in detail,
47 while other influential proposals are not (for example those by Recanati, Giora, and Ariel).
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50 Chapter 3 reviews conceptual and methodological developments in the 20th century that have shaped
51 the experimentalist's approach to language. The main thrust is to show psychology has evolved as a
52 discipline by aiming to avoid subjective judgement and introspection. Two biases that researchers
53 should be aware of take center-stage: confirmation bias, which is the human tendency to seek
54 confirmation rather than falsification of our own hypothesis; and availability bias, which is the
55 tendency to provide judgements about the frequency of an event based on immediate examples and
56 similar instances that come to mind. Linguists need to be aware of these too, Noveck argues, as even
57 professionals can have different intuitions and judgements depending on the context and their own
58 experiences. In the final section, Noveck points out two significant achievements in the field of
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1 cognitive science which are relevant for experimental pragmatics: Theory of Mind (ToM) and
2 modularity.

3 Chapter 4 offers a very brief overview of some experimental techniques utilized in experimental
4 pragmatics, including priming, eye-tracking, mouse-tracking, fMRI, and EEG. These techniques are
5 described simply and concisely and the chapter serves as a good introduction for readers who are new
6 to experimental methods. However those with more prior experience might prefer the methods to be
7 discussed when they come to be used, which would also clearly illustrate their relevance to
8 experimental pragmatics. Moreover, we were surprised that “Developmental Data” and
9 “Crowdsourcing” had a place in this chapter. Neither of these are experimental techniques per se (one
10 can use many of the other techniques described in the chapter either in the lab or via crowdsourcing
11 over the internet; with adults, children, elderly people, or neurodiverse populations for that matter).
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14 The fifth chapter summarizes the ways in which experimental methods were used to investigate
15 pragmatics questions from the ‘70s onwards – with an emphasis on Gricean theory. The first half of
16 the chapter focuses on a less widely-discussed but nonetheless fascinating topic, namely the
17 application of pragmatic interpretations to Piaget's tasks. For example, finding out that the widely-
18 reported difficulties children have with the Class Inclusion Task are actually driven by children being
19 more pragmatic than adults rather than being deficient in logical development was intriguing (children
20 narrow the meaning of a superordinate term to exclude the meaning of a subordinate term, because
21 the terms are used contrastively; adults do not do this because they can distinguish test-situations
22 from a genuine conversational exchange in which such narrowing could be licensed). In the second
23 half, Noveck summarises early research on metaphor, indirect speech acts and other phenomena that
24 tested the ‘Standard Pragmatic Model’ (SPM). Given that in the late ‘80s Gricean pragmatics decreased
25 in popularity in experimental circles, Noveck asks if we should abandon the Gricean account. He argues
26 that the falsification of the SPM is not the same as the falsification of the Gricean programme, because
27 the latter is a theoretical account (at the computational level, adopting Marr’s 1982, terminology)
28 while the former is an account of the processes involved (at the algorithmic level). We felt that this
29 was an important point that could be made for all theoretical accounts in principle (e.g. neo-Griceans,
30 grammatical accounts of pragmatics, among others) and not just Grice’s. Having noted this, we
31 thought that an exception, nevertheless, could be made for theories that can be seen as directly
32 making theoretical-pragmatic predictions with psycholinguistic validity too (such as Relevance theory
33 or Giora’s Gradient Salience Hypothesis). For theories that may be considered to lie at both the
34 computational and algorithmic level experimental results have direct implications for theory itself.
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40 Reading Chapters 1-5 had a particular allure. While much of the knowledge presented has been
41 superseded to some extent (and the newer developments are presented in later chapters), the
42 journey through the evolution of the field and the connections between early psychological and
43 linguistic work was a revelation of a dialogue between the disciplines that even the more experienced
44 members of our group were only vaguely aware of. For those new to the field these chapters also
45 served as a good introduction, while for those more familiar the chapters helped explain and
46 contextualise a lot of the more recent research. From here onward the book enters territory that will
47 be more familiar to everyone who has an interest in modern experimental pragmatics – and in many
48 ways this now becomes an account of the author’s own journey.
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51 Chapter 6 focusses on the enrichment of logical terms via scalar implicature, the drosophila of
52 experimental pragmatics. In the first part, Noveck reviews developmental evidence – much of it
53 contributed by Noveck, Nausicaa Pouscoulous, and their colleagues – which Noveck uses to argue that
54 children do not have the cognitive resources to process pragmatically enriched meanings in an adult-
55 like way. In the second half, Noveck reviews evidence from self-paced reading, accuracy and reaction
56 times, as well as eye-tracking and concludes that in a general sense there is a greater effort required
57 for pragmatic enrichment – which accords with the developmental data. A possible explanation for
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1 the processing demands of pragmatic enrichment emerges from the chapter's discussion of Theory of
2 Mind.

3 Chapter 7 builds directly upon Chapter 6 to discuss the much-debated case of local enrichments,
4 embedded scalar implicatures, which has been advocated by default and grammatical accounts.
5 Noveck explains how much of this research, and certainly his own engagement with it, benefitted from
6 the idea of *adversarial collaboration* where two researchers with opposing views – in this case Noveck
7 and Gennaro Chierchia – team up to agree on questions and methods to test them. Having introduced
8 monotonicity with reference to conditionals and disjunction, Noveck summarizes the debate
9 admirably clearly. Accounts by Chierchia and colleagues that place emphasis on the role of semantic
10 context (monotonicity) and the role of a covert syntactic operator akin to a silent *only* are countered
11 at the theoretical level by Russell and Geurts' work who argue (i) that some of these apparently local
12 enrichments can be arrived at via Gricean pragmatics, and (ii) that many of the local enrichments are
13 available to trained linguists only. Noveck reports the key experimental evidence for each side with
14 clarity. He concludes the chapter noting that both sides seem to have collected some evidence in their
15 favour. Importantly, he highlights that small changes to the experimental paradigm lead to drastic
16 changes in the rates of local enrichments, which emphasizes the importance of creating naturalistic
17 experimental paradigms. Here, we felt that an in-depth review of van Tiel (2014), which is a prime
18 example of demonstrating these points, would have been an important addition to the discussion.
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22 Overall, members of our seminar who were new to the field felt that Chapters 6 and 7 were a very
23 accessible introduction. We also felt that the combination of probabilistic modelling of pragmatic
24 inferencing with experimental results and corpus work on scalar implicature could have its proper
25 mention in one of these chapters (instead of being a footnote in Chapter 13).
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28 Chapter 8 recounts early and more recent research on conditionals. The focus is on two cases of
29 logically erroneous inferencing, Affirmation of the Consequent and Denial of the Antecedent, which
30 have been analysed by linguists as stemming from conditional perfection, itself a result of scalar
31 implicature. The chapter is organised in three sections: developmental data, reaction time data, and
32 explaining inter-subject variation. The conclusion that Noveck draws is that in all respects the evidence
33 from conditionals patterns differently from scalars. Young children are more logical than adults with
34 scalars but less logical with conditionals; extra time and effort leads to more logical interpretations
35 with conditionals, whereas it leads to more pragmatic interpretations with scalars; and while IQ and
36 working memory tend to be considered as important variables for conditionals, there is a case to be
37 made for the role of Theory of Mind for scalars. For all the members of the seminar, it was illuminating
38 not only to read about conditionals but to compare them to scalars too, a link that is not found in
39 other work that we were aware of. As in some other chapters, some of us were unsure how helpful it
40 was that some of the researchers cited were referred to by their first name, and that the chapter
41 included quite a few personal details. We agreed that this was a matter of personal taste, and that
42 perhaps this sort of style adds some levity to what could have been a rather technical discussion due
43 to the nature of conditionals.
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49 Chapter 9 on reference brings together at least three strands of research which have not
50 systematically interacted with each other. Young school-aged children's production and
51 comprehension of under- and over-informative utterances; phylogenetic accounts of reference in its
52 earliest pre-linguistic manifestation, which is pointing; and Herb Clark and colleagues' work with
53 adults' use of reference, revealing that it is a matter of conversational dynamics, a way for
54 interlocutors over time to establish and conventionalise their shared referents. Overall, the chapter is
55 impressive in the range of studies that it surveys and Noveck also does a great job at highlighting big-
56 picture issues, especially the role of conventions, and that these conventions are speaker-specific. But
57 we also felt that the structure of the chapter could have been improved by reporting research by
58 increasing age of the study population. Starting with the infant work on pointing, it would be
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1 reasonable to continue with the research on under- and over-informativeness in pre-school and
2 school-aged children, and then move to adults. This might also allow some paradoxical conclusions to
3 come to the foreground. For example, how is it possible that, according to Tomasello's work, pre-
4 linguistic babies and very young children use pointing and gestures informatively and cooperatively,
5 as if they are perfect little Grices? And yet, why do children of three or more years of age appear not
6 to be sensitive to violations of informativeness in referring expressions? This is a real puzzle that is
7 worth discussing and may have come to the foreground by arranging the subsections in a different
8 way.
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11 Chapter 10 returns to the study of metaphor in more recent years, with emphasis on the Direct Access
12 view (Colston, Gibbs, and colleagues), Giora's Graded Salience Hypothesis, and especially Relevance
13 theorists' loose use of language. Noveck concludes not just about metaphor, but lexical meaning more
14 widely, that the emerging findings support a view where the fixed meaning of words is fairly minimal,
15 with context playing a major role in selecting the appropriate sense. Chapter 11 focusses on recent
16 advances in irony. Again, the Direct Access view is relevant here, as are Graded Salience and Relevance
17 theory's echoic use of language, as well as accounts that have been developed especially for irony.
18 After reviewing work which shows that – contrary to the Standard Pragmatic Model- irony can be
19 understood immediately as such under specific conditions, Noveck reports on more recent work,
20 including by Spotorno and Noveck, which shows that there is a fundamental role for attribute
21 ascription as per the echoic view of irony, and also for engaging Theory of Mind skills for irony.
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25 In Chapter 12, the spotlight is on the pragmatic skills of people with a particular neurodevelopmental
26 condition, Autism Spectrum Disorder (ASD). The chapter reviews the influential findings by Baron-
27 Cohen and colleagues that often people with ASD do not perform as well as neurotypical peers in
28 Theory of Mind tasks, leading to the expectation – and early findings – that people with ASD would be
29 challenged by pragmatics, precisely because of the link between pragmatics and Theory of Mind. The
30 emphasis in the main part of the chapter is on more recent studies by Chevallier, Pijnacker and their
31 colleagues, which conclude that people with ASD may perform at very high levels in tasks that require
32 them to process or act upon prosodic cues, indirect speech acts, underinformativity, and conditional
33 inferences, thereby challenging the received view. This chapter was an interesting and resourceful
34 overview of experimental investigations into the pragmatic abilities of people with ASD. More
35 attention however could have been given to the word choices when discussing ASD, to avoid
36 impairment-oriented language and instead focus on difference rather than deficiency. We also
37 thought that investigations with people with ASD would have been better placed within each chapter
38 that primarily dealt with the phenomenon under scrutiny, rather than being collected in an ASD-
39 dedicated chapter. For example, the studies by Pijnacker and Chevallier could have been a good
40 complement within the chapter on scalar implicatures, especially because they could be telling about
41 a role (or possibly the lack thereof) of Theory of Mind in the derivation of scalar implicatures.
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46 The penultimate chapter is concerned with documenting issues in Experimental Pragmatics that have
47 not been covered in the scope of previous chapters. It is structured around the summarization of five
48 areas: logical metonymy, metonymy, negation, presupposition, and prosody. Each of these topics is
49 explored in differing lengths, reporting some of the relevant work, and to conclude the whole chapter,
50 Noveck lists anaphora, alliteration and hyperbole as other possible areas of exploration providing
51 some citation for studies concerning these areas.
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54 The concluding chapter is aptly titled 'Opinionated Conclusions' and offers Noveck's preferred outlook
55 on doing experimental pragmatics. Among these is a linguistic and psycholinguistic distinction
56 between voluntary and imposed pragmatic enrichments, which – as Noveck and Spotorno first argued
57 – has the potential to explain some of the outstanding questions. Second, Noveck proposes to adopt
58 a *wide-view* approach to experimental pragmatics as opposed to a *stratigraphic* approach. The terms
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1 are inspired by archaeological approaches to an excavation site; the former aims to capture the bigger
2 picture of how people used the space and artefacts therein, while the latter aims to uncover in detail
3 what artefacts lie underneath a certain location with a painstaking analysis of each layer. Noveck
4 himself believes that pragmatics should be trying to capture language use in its broadest terms, and
5 to do it with interfaces with philosophy and psychology especially as regards the study of intentions.
6 Finally, that experimental research is a conversation, where – over a number of iterations –
7 researchers create common ground by converging on what questions are worth asking, and what the
8 facts are in an objective way. Noveck’s own engagement in adversarial collaboration is held out as an
9 important experience that has shaped his thinking.
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11 Returning to the challenges we set to the book at the beginning of the seminar, we felt we were richly
12 rewarded in all three. As regards readability, the book scores at the very top. The chapters abound
13 with interesting – linguistically and otherwise – conversations Noveck has found himself in and many
14 examples of misunderstandings with real life consequences. As mentioned above, researchers with
15 whom Noveck has regularly interacted, whether in agreement or disagreement, are routinely referred
16 to by their first name, as we learn of the people, ideas and findings that influenced Noveck’s thinking.
17 While not everyone will appreciate every aspect of this type of writing, it does bring freshness. The
18 writing is also very clear overall, with few exceptions. As regards content, the book does not conceal
19 the fact that it does not aim to depict comprehensively the state of the art of the field, but to convey
20 one person’s journey through it. And this works very well, not least because Noveck and his colleagues
21 have in fact worked on an impressive subset of the topics in experimental pragmatics, often making
22 contributions that are considered ground-breaking in the field (e.g., on metaphor, scalar implicature,
23 irony, and conditionals). Moreover, there is an internal conversation between chapters and the effort
24 to make sense of the common underlying questions. This allows the book to draw connections that
25 are not readily found in other work, for example trying to offer a principled unifying explanation for
26 children’s performance in the class inclusion task, their ability to generate scalar implicatures, and
27 their understanding of conditionals. The connections between these phenomena feel like the natural
28 outcome of the conclusions and questions that a single person who works in all of these has raised.
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34 The volume does make compromises between the needs of its diverse audiences. Just as readers with
35 a background in psychology will find an informative and accessible introduction to pragmatics in
36 Chapter 2, those who come from a linguistic background will find Chapter 3 an informative account of
37 some basic tenets of modern psychological enquiry. Chapter 4 serves as a good introduction to
38 relevant experimental methods, but readers who are already conversant with these techniques might
39 prefer the focus to switch more rapidly to their specific application to experimental pragmatics. Similar
40 issues arise for most later chapters.
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43 Importantly, Noveck offers many big-picture issues for discussion for both audiences. Chief among
44 them is the scrutiny of the details of each experiment. While experiments help the discussion forward
45 by avoiding subjective judgements, time and again in the book we are faced with the challenge of
46 interpreting conflicting results, not from individual researcher’s differing intuitions, but from
47 experiments themselves. Is this progress? Noveck offers several parameters for understanding
48 conflicting experiments, from the minutiae of the experimental conditions to the complexity of the
49 task and ecological validity, all of which contribute towards a resounding positive response in that
50 there is a pathway outlined towards arriving at the objective data. Overall, we learned of ways to work
51 with people, as well as ways to work with experimental techniques and data. And we were prompted
52 to discuss experimental pragmatics both from the wide-view and the stratigraphic approach. While
53 we did not agree with Noveck in every turn, we were guaranteed a very lively discussion at every
54 meeting. We felt we made an excellent choice for a reading for our seminar.
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58 REFERENCE (not available in the book)
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van Tiel, B. (2014). Embedded scalars and typicality. *Journal of Semantics*, 31(2), 147–177.
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Napoleon Katsos, Ema Banerjee, Yin Jue Chang, Thomas Hikaru Clark, Joe Cowan, T. R. Williamson, Zuzanna Witkowska

Very short bios:

Napoleon Katsos is Professor of Experimental Pragmatics at the University of Cambridge. His research interests lie in the intersection of semantics and pragmatics on the one hand and language acquisition and processing by neurodiverse populations.

Ema Banerjee has completed her BA and MPhil in Theoretical and Applied Linguistics at the University of Cambridge and is pursuing her PhD in the same field. Her major interests include syntax and its interaction with semantics/pragmatics, experimental linguistics, and language processing.

Yin Jue Chang completed a BSc in Experimental Linguistics at University College London and an MPhil in Theoretical and Applied Linguistics at the University of Cambridge. She is interested in the use of experimental methods in linguistic research and how multilingualism experience affects cognitive functions.

Thomas Clark is a PhD candidate in Brain and Cognitive Sciences at the Massachusetts Institute of Technology. He completed an MPhil in Theoretical and Applied Linguistics at the University of Cambridge, and is interested in computational models of language and pragmatics.

Joe Cowan is a PhD candidate of Linguistics at the University of Cambridge. His research interests centre on experimental pragmatics, with a specific focus on the acquisition and development of referential phenomena.

T. R. Williamson completed a BA in Linguistics and Philosophy at Lancaster University, before moving on to an MPhil in Theoretical and Applied Linguistics at the University of Cambridge. His research interests broadly encompass meaning and mind, with more recent work focused on embodied cognition.

Zuzanna Witkowska did her BA and MPhil at the University of Cambridge, working primarily on syntax, and is starting a PhD focusing on miscommunication in native/non-native interaction.