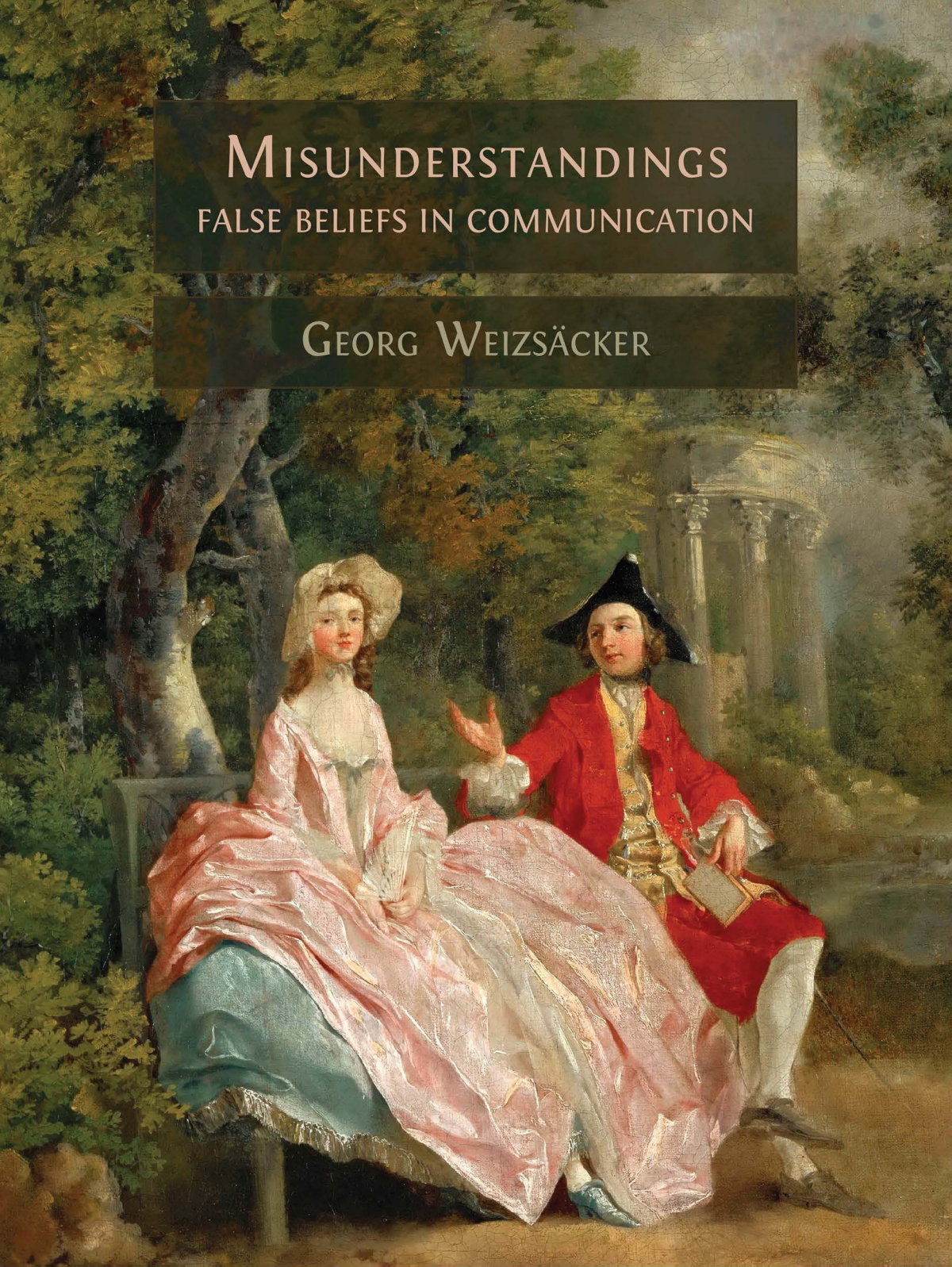


# MISUNDERSTANDINGS FALSE BELIEFS IN COMMUNICATION

GEORG WEIZSÄCKER



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# Chapter 11

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Gordon, Anne K., and Arthur G. Miller (2000), Perspective Differences in the Construal of Lies: Is Deception in the Eye of the Beholder?, *Personality and Social Psychology Bulletin* 26(1), 46-55.

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trism among friends versus strangers, *Journal of Experimental Social Psychology* 47, 269-273.

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## Further reading

As complement for **Chapter 1**, and perhaps the entire book, the following seven works give surveys of the many applications of communication in different disciplines. The list is selective but the reader finds many more references in these texts. The list also supports the claims about the literature in Chapter 1.

A useful survey of communication experiments in economics:

- Blume, Andreas, Ernest K. Lai and Wooyoung Kim (2020), Strategic Information Transmission: A Survey of Experiments and Theoretical Foundations, in C.M. Capra, Rachel T.A. Croson, Mary L. Rigdon and Tanya S. Rosenblat (eds.), *Handbook of Experimental Game Theory*, Elgar.

The following is a fun-to-read-but-precise overview of psychological evidence of how little we understand the minds of others. The book includes many references to findings that are specific to communication, including misunderstandings.

- Epley, Nicholas (2015), *Mindwise*. Penguin Books.

An earlier account of misunderstandings, from a sociological perspective, is in the following volume.

- Young, Robert L. (1999), *Understanding misunderstandings: A practical guide to more successful human interaction*. University of Texas Press.

For theory-minded economists, the following handbook chapter has a good introduction to both the theory and the wide set of applications of strategic communication in economics and organizations. It shows the strong focus that economists put on equilibrium thinking.

- Gibbons, Robert, Niko Matouschek and John Roberts (2013), *Decisions in Organizations*, in: Gibbons, Robert, Niko Matouschek and John Roberts (editors), *The Handbook of Organizational Economics*, Princeton University Press.

Among the set of social sciences, political science is special in that communication has long been established as a really big topic. Actually, as a whole subdiscipline, as described in this large handbook.

- Kaid, Lynda Lee (editor) (2004), *Handbook of Political Communication Research*. Lawrence Erlbaum Associates.

An insightful and recent economics book collects evidence on an important part of communication: advice. The book highlights how advice and societal conventions are intertwined.

- Schotter, Andrew (2023), *Advice, Social Learning, and the Evolution of Conventions*. Cambridge University Press.

A concise and fairly recent overview of linguistic studies on misunderstandings appears in the following article.

- Padilla Cruz, Manuel (2017), Interlocutors-Related and Hearer-Specific Causes of Misunderstanding: Processing Strategy, Confirmation Bias and Weak Vigilance, *Research in Language (RiL)* 1, 11-36.

The formal set-up of the analysis in **Chapter 2** is close to the typical ones in game theory. The following two textbooks are classics in this field. The first is more technical and has a deeper coverage of information structures in games of incomplete information. The second focusses more on applications from economics and political science. A nice connection of this book to the present one is that many of its analyses are described for general, non-equilibrium beliefs.

- Fudenberg, Drew, and Jean Tirole (1991). *Game Theory*. MIT Press.
- Osborne, Martin (2002). *An Introduction to Game Theory*. Oxford University Press.

The following book made an important conceptual contribution to both pragmatics and game theory, by describing the concept of common knowledge for the first time. (In economics, Robert Aumann introduced it several years later but pretty much independently.) The book is a game-theoretic treatise of language, and everything is in equilibrium here.

- Lewis, David (1969), *Convention: A Philosophical Study*. Harvard University Press.

A broad decision-theoretic textbook with an introduction to subjective expected utility and its many variants is found here:

- Wakker, Peter P. (2010), *Prospect Theory: For Risk and Ambiguity*. Cambridge University Press.

The distinction between discrimination and calibration, mentioned first in **Chapter 3**, is attributed to Allan H. Murphy and has its roots in the literature on forecasting – yet another scientific discipline that has connections to the literature on belief elicitation. The following list of articles includes also other works that give an overview of belief elicitation.

- Armantier, Olivier, and Nicolas Treich (2013), Eliciting beliefs: Proper scoring rules, incentives, stakes and hedging. *European Economic Review* 62, 17-40.
- Hollard, Guillaume, Sebastien Massoni and Jean-Christophe Vergnaud (2016), In search of good probability assessors: an experimental comparison of elicitation rules for confidence judgments. *Theory and Decision* 80, 363-387.
- Murphy, Allan H. (1998), The Early History of Probability Forecasts: Some Extensions and Clarifications. *Weather and Forecasting* 13, 5-15. The paper describes the history of forecasting literature, including references to Murphy's own work.
- Schotter, Andrew, and Isabel Trevino (2014). Belief Elicitation in the Laboratory. *Annual Review of Economics* 6, 103-128.

A useful overview of the many applications of belief data in economics is given by the following volume:

- Bachmann, Rüdiger, Giorgio Topa, and Wilbert van der Klaauw (editors) (2022), *Handbook of Economic Expectations*, Elsevier.

The reader may have noticed that Chapter 3 does not present evidence that is specific to communication. The failure to connect with communication research owes to the generally rather juvenile state of the literature that

covers experiments on communication beliefs.

Yet, the chapter introduces many of the book's main concepts. The distinction between manifest and known is a key element of relevance theory, a theory with big impact on the entire field of pragmatics, including many ideas that appear in this book. The following is the main bibliographic reference for this theory. (Note: this references the book's second edition, of 1995. The first edition appeared in 1986.)

- Sperber, Dan, and Deirdre Wilson (1995), *Relevance: Communication & Cognition. Second Edition*. Blackwell Publishing.

Another important concept of Chapter 3 is context dependence of conversations. Context dependence, too, is a defining element of the field of pragmatics. Where its importance was first recognized is unknown (to the author) but a frequent reference in the current literature is a collection of philosophical papers by Herbert H. Clark and his co-authors.

- Clark, Herbert H. (1992), *Arenas of Language Use*. University of Chicago Press and Center for the Study of Language and Information.

Chapter 3's two other main concepts are belief biases (mainly discussed in Question 2) and the possible neglect of type-specific actions (Question 1). Each of them follows a wide literature and on both of them, a recent handbook provides a good literature survey:

- Benjamin, Daniel (2019), Errors in probabilistic reasoning and judgment biases. Chapter 2 in: Bernheim, B. Douglas, Stefano Della Vigna, and David Laibson (editors), *Handbook of Behavioral Economics – Foundations and Applications 2*. North-Holland.
- Eyster, Erik (2019), Errors in Strategic Reasoning. Chapter 3 in: Bernheim, B. Douglas, Stefano Della Vigna, and David Laibson (editors), *Handbook of Behavioral Economics – Foundations and Applications 2*. North-Holland.

On the possible neglect of type-specific actions: this behavioral bias has become highly influential in behavioral economics, due to the following contribution, among others:

- Eyster, Erik, and Matthew Rabin (2005), Cursed Equilibrium, *Econometrica* 73(5), 1632-1673.



Yet, the bias has only very recently been expressed in the form of theoretical models that are tailored to sequential games, like communication games. Two relevant studies – with nicely fitting titles – are:

- Cohen, Shani, and Shengwu Li (2023), *Sequential Cursed Equilibrium*, Working Paper, Harvard University.
- Fong, Meng-Jhang, Po-Hsuan Lin, and Thomas R. Palfrey (2023), *Cursed Sequential Equilibrium*, Working Paper, California Institute of Technology.

As a final comment on Chapter 3, the psychological evidence on correspondence bias is covered extensively in Epley (2015), cited above. A classic publication on this effect is the following article.

- Gilbert, Daniel T., and Patrick S. Malone (1995), The Correspondence Bias. *Psychological Bulletin* 117, 21-38.

**Chapter 4**'s initial statements about language as a convention refers mainly to Lewis's (1969) contribution that is cited above. The term "talking beliefs", and their precise description, does not appear in the previous literature, to the author's knowledge. However, many of the **empirical papers** cited throughout the book report belief data that have precisely this format.

The question of more or less informative equilibria, including the possibility of babbling equilibria, is a classic and wide discussion in the game theory of strategic transmission. In addition to the overview paper of Gibbons et al. (2013), cited above, the following two articles are noteworthy. The first is a substantial article that started a whole literature, discussing formally the possible equilibria in "cheap talk" communication games where the talker has an objective function that is different from that of the listener. The second is an elegant survey of what communication is possible and impossible, in theory.

- Crawford, Vincent P., and Joel Sobel (1982), Strategic Information Transmission. *Econometrica* 50, 1431-1451.
- Sobel, Joel (2020), Lying and Deception in Games, *Journal of Political Economy* 128(3), 907-947.

The chapter also includes a brief discussion of the use of monetary incentives in experiments (continued in the subsequent chapter). This is actually

a fundamental methodological discussion that is as old as the entire research field. The reader can obtain an in-depth treatment of this discussion, and of many other methodological issues, in the following textbook.

- Bardsley, Nicholas, Robin Cubitt, Graham Loomes, Peter Moffatt, Chris Starmer, and Robert Sugden (2020), *Experimental Economics – Rethinking the Rules*. Princeton University Press.

The reference to the “art of questioning” and affective questions points to the largely empirical and interdisciplinary field of communication studies. Insights from this field also enter in Chapter 5, in the discussion of the personal characteristics of the talker. They are contained in the following overview book.

- Hargie, Owen (2017), *Skilled Interpersonal Communication: Research, Theory and Practice. Sixth Edition*. Routledge.

Chapter 4 connects the discussion of the listener’s type with that of (im)politeness. Politeness is an established subliterate within linguistics, as the following works show. The first is a well-written and very accessible linguistic textbook that summarizes many key concepts used in this book. The second is a collection of mostly empirical studies on the linguistics of impoliteness. Throughout the book, snippets of recorded conversations illustrate quite impressively how fast and efficient human interlocutors can be when it comes to producing impolite utterances. The book also shows a major difference between experimental psychology/economics and (large parts of) the empirical research in linguistics: the latter uses naturally occurring data far more frequently than the former.

- Birner, Betty J. (2013), *Introduction to Pragmatics*. Wiley-Blackwell.
- Bousfield, Derek, and Miriam A. Locher (eds.) (2008), *Impoliteness in Language: Studies on its Interplay with Power in Theory and Practice*. Mouton de Gruyter.

The classic piece of work on speech acts is the following by John L. Austin. He is one of the grandfathers in the field of philosophy of language – and he only needs the book’s title to show his skill. A modern treatment of the lectures that his book contains, and subsequent material, appears in Birner (2013), cited above.

- Austin, John L. (1962), *How to do things with words*. Oxford University Press.

A very good discussion of how the importance of context speaks against the view of language as a convention can be found in the introductory chapter of Sperber and Wilson (1995), cited above.

Chapter 4 also introduces the most important thought of the present book that is translated from Sperber and Wilson’s (1995) book: the idea that the talker identifies relevance and (in Chapter 7) that the listener expects the same from the talker. Upon inspection of the translation, one may notice that the present book defines the (perceived) relevance of a context, whereas Sperber and Wilson discuss the relevance of a statement. In each case, the important emphasis of the discussion lies on the interaction between a statement and its context. Both variants of “relevance” serve this purpose and describe, by and large, the same psychological phenomenon.

**Chapter 5** describes the possible significance of the fact that the talker talks at all (instead of being silent). This is another important part of Sperber and Wilson’s (1995) relevance theory: the tacit guarantee of relevance. (Empirically speaking, the listener may miss it.) Chapter 7 picks the same reasoning up again.

Context-dependent listening (Question 9) is described as a simple step in the direction of meaning. This relates *inter alia* to the works of Clark (1992) and Sperber and Wilson (1995) that were cited above. The earlier and even more classic references to such context-dependent meaning are the works by H. Paul Grice that he wrote, roughly, during the forty-year span after 1945 and that are collected in this book:

- Grice, H.P. (1989), *Studies in the Way of Words*, Harvard University Press.

The theoretical properties of incentive mechanisms that pay money for reported beliefs, also discussed in Chapter 5, are well-understood by now. Recent noteworthy contributions include the following two. The first collects a wide set of theoretical knowledge, and empirical assessments, about scoring rules. The second contains the mechanism described in the text.

- Schlag, Karl H., James Tremewan, and Joel van der Weele (2015), A penny for your thoughts: a survey of methods for eliciting beliefs. *Experimental Economics* 18, 457-490.
- Hossain, Tanjim, and Ryo Okui (2013), The Binarized Scoring Rule. *Review of Economic Studies* 80, 984-1001.

The behavioral reaction of experimental participants to incentive rules – including the observation that the data quality depends on the payment, has been examined in numerous experiments. Recent ones are by Hollard et al. (2016), cited above, and the following three.

- Trautmann, Stefan, and Gijs van de Kuilen (2015), Belief elicitation: A horse race among truth serums. *The Economic Journal* 125, 2116–2135.
- Charness, Gary, Uri Gneezy, and Vlastimil Rasocha (2021), Experimental methods: Eliciting beliefs. *Journal of Economic Behavior and Organization* 189, 234–256.
- Danz, David, Lise Vesterlund, and Alistair Wilson (2022), Belief Elicitation and Behavioral Incentive Compatibility. *American Economic Review* 112(9), 2851–2883.

The discussion in **Chapter 6** relies on large literatures in psychology and behavioral economics, on misperceived mental models of other people. The two bodies of literature in these two fields are quite different in nature, and the above-cited works by Epley (2015) and Eyster (2019) give comprehensive introductions. Another very useful introduction to the economic models of misperceived opponents, which also has a section on communication games, is here:

- Crawford, Vincent P., Miguel A. Costa-Gomes, and Nagore Irriberri (2013), Structural Models of Nonequilibrium Strategic Thinking: Theory, Evidence, and Applications. *Journal of Economic Literature* 51, 5–62.

An important part of this literature is the general idea that economic agents take into account that other economic agents make errors. If this taking-into-account follows rational-expectations assumptions and there is common knowledge about this fact, the model prediction is that of Quantal Response Equilibrium. The seminal article on it is

- McKelvey, Richard D., and Thomas R. Palfrey (1995), Quantal Response Equilibria for Normal Form Games. *Games and Economic Behavior* 10, 6–38.

Two well-known articles about psychological games, another item of discussion in Chapter 6, are the following:

- Geanakoplos, John, David Pearce, and Ennio Stacchetti (1989), Psychological Games and Sequential Rationality. *Games and Economic Behavior* 1, 60-79.
- Rabin, Matthew (1993), Incorporating Fairness into Game Theory and Economics. *American Economic Review* 83, 1281-1302.

The methodology on collecting second-order beliefs is far less widely researched than that for first-order beliefs. The following article is sometimes cited as the seminal one.

- Manski, Charles F., and Claudia Neri (2013), First- and second-order subjective expectations in strategic decision-making: Experimental evidence. *Games and Economic Behavior* 81, 232-254.

**Chapter 7** contains the first portion of the book's main discussion about pragmatic meaning. The argumentation is oriented at relevance theory as described in Sperber and Wilson (1995), cited above.

The following book contains another closely related analysis of language. It describes how context-dependent signals and beliefs can carry meaning with few steps of reasoning. Like the present book, it follows an empirical approach to language. Its main focus lies on the origin of language, arguing that much knowledge about human communication can be learned from measuring communication of animals.

- Tomasello, Michael (2008), *Origins of Human Communication*. MIT Press.

A wide overview of many empirical findings of lie detection (often, the lack thereof) is in the following book:

- Vrij, Aldert (2008), *Detecting Lies and Deceit: Pitfalls and Opportunities*. John Wiley & Sons.

Another classic reference for the difficulty of lie detection is the following article:

- Bond, Charles F. Jr., and Bella M. DePaulo (2006), Accuracy of Deception Judgements, *Personality and Social Psychology Review* 10(3), 214-234.

A communication game that allows measuring the frequency of lying – a different game that is not covered in this book but has received wide attention – is examined in the following two papers. The first is the original reference to the game, the second is a meta-study:

- Fischbacher, Urs, and Franziska Föllmi-Heusi (2013), Lies in Disguise—An Experimental Study on Cheating. *Journal of the European Economic Association* 11(3), 525-547.
- Abeler, Johannes, Daniele Nosenzo, and Collin Raymond (2019), Preferences for Truth-Telling. *Econometrica* 87(4), 1115-1153.

A study of white lies in an experimental game can be found here:

- Gneezy, Uri (2005), Deception: The Role of Consequences. *American Economic Review* 95(1), 384-394.

The “mirrored” game, which Grabova et al. (2023) use to observe a full set of talking beliefs and listening beliefs, was introduced in the following article:

- Peeters, Ronald, Marc Vorsatz, and Marcus Walzl (2015), Beliefs and truth-telling: A laboratory experiment. *Journal of Economic Behavior and Organization* 113, 1-12.

The main discussions in **Chapter 8** also use insights from the game-theoretic and relevance-theoretic works, contained e.g. in Sobel (2020) and Sperber and Wilson (1995), both cited above. The discussion of linguistic vagueness draws on insights summarized in the following overview chapter:

- van Rooij, Robert (2011), Vagueness and linguistics. In: Ronzitti, Gabriella (ed.), *Vagueness: A Guide*. Springer.

**Chapter 9**’s main part refers to Grice’s notion of speaker’s meaning. The definition with beliefs in (a), (b) and (c) is adapted from the exposition in Sperber and Wilson (1995), cited above. For very useful discussion of intentions in communication, the reader is referred to Tomassello (2008), also cited above.