



OXFORD

evidence and method

# LINGUISTIC INTUITIONS

EDITED BY

Samuel Schindler

Anna Drożdżowicz

Karen Brøcker

# Linguistic Intuitions



# Linguistic Intuitions

*Evidence and Method*

Edited by

SAMUEL SCHINDLER, ANNA DROŹDŹOWICZ,  
AND KAREN BRØCKER

OXFORD  
UNIVERSITY PRESS

# OXFORD

UNIVERSITY PRESS

Great Clarendon Street, Oxford, OX2 6DP,  
United Kingdom

Oxford University Press is a department of the University of Oxford.  
It furthers the University's objective of excellence in research, scholarship,  
and education by publishing worldwide. Oxford is a registered trade mark of  
Oxford University Press in the UK and in certain other countries

© editorial matter and organization Samuel Schindler, Anna Drożdżowicz, and Karen Bröcker 2020  
© the chapters their several authors 2020

The moral rights of the authors have been asserted

First Edition published in 2020

Impression: 1

All rights reserved. No part of this publication may be reproduced, stored in  
a retrieval system, or transmitted, in any form or by any means, without the  
prior permission in writing of Oxford University Press, or as expressly permitted  
by law, by licence or under terms agreed with the appropriate reprographics  
rights organization. Enquiries concerning reproduction outside the scope of the  
above should be sent to the Rights Department, Oxford University Press, at the  
address above

You must not circulate this work in any other form  
and you must impose this same condition on any acquirer

Published in the United States of America by Oxford University Press  
198 Madison Avenue, New York, NY 10016, United States of America

British Library Cataloguing in Publication Data  
Data available

Library of Congress Control Number: 2020932181

ISBN 978-0-19-884055-8

Printed and bound by  
CPI Group (UK) Ltd, Croydon, CR0 4YY

Links to third party websites are provided by Oxford in good faith and  
for information only. Oxford disclaims any responsibility for the materials  
contained in any third party website referenced in this work.

# Contents

<i>Acknowledgments</i>	vii
<i>List of abbreviations</i>	ix
<i>The contributors</i>	xi

1. Introduction	1
<i>Karen Bröcker, Anna Drożdżowicz, and Samuel Schindler</i>	

## PART I: ACCOUNTS OF LINGUISTIC INTUITIONS

2. Linguistic intuitions: Error signals and the Voice of Competence	13
<i>Steven Gross</i>	
3. A defense of the Voice of Competence	33
<i>Georges Rey</i>	
4. Linguistic intuitions again: A response to Gross and Rey	51
<i>Michael Devitt</i>	
5. Do generative linguists believe in a Voice of Competence?	69
<i>Karen Bröcker</i>	
6. Semantic and syntactic intuitions: Two sides of the same coin	89
<i>John Collins</i>	
7. Intuitions about meaning, experience, and reliability	109
<i>Anna Drożdżowicz</i>	
8. How we can make good use of linguistic intuitions, even if they are not good evidence	129
<i>Carlos Santana</i>	

## PART II: EXPERIMENTS IN SYNTAX

9. The relevance of introspective data	149
<i>Frederick J. Newmeyer</i>	
10. Can we build a grammar on the basis of judgments?	165
<i>Sam Featherston</i>	
11. Acceptability ratings cannot be taken at face value	189
<i>Carson T. Schütze</i>	

12. A user's view of the validity of acceptability judgments as evidence for syntactic theories	215
<i>Jon Sprouse</i>	
13. Linguistic intuitions and the puzzle of gradience	233
<i>Jana Häussler and Tom S. Jurek</i>	
14. Experiments in syntax and philosophy: The method of choice?	255
<i>Samuel Schindler and Karen Brøcker</i>	
<i>References</i>	275
<i>Index</i>	297

# Acknowledgments

This volume was made possible by a generous Sapere Aude grant (4180-00071) that Samuel Schindler received from the Independent Research Fund Denmark for the project “Intuitions in Science and Philosophy,” which ran from 2016 to 2019 at Aarhus University. The project investigated intuitive judgments in thought experiments in physics and acceptability judgments in linguistics and drew lessons for debates about the use of intuitive judgments in philosophy.

The workshop “Linguistic Intuitions, Evidence, and Expertise,” which was held at Aarhus University in October 2017 as part of the project, initiated the idea for the present volume. The workshop brought together linguists and philosophers interested in the methodological foundations of linguistics to discuss whether intuitions can legitimately be used as evidence in linguistics. We are grateful to the participants for fruitful discussions and inspiration that has led to this book.

We would like to thank all contributors to our volume for their hard work and dedication. We are also very grateful to our expert reviewers, who provided anonymous comments for the individual chapters, as well as to the anonymous reviewers for Oxford University Press, who provided feedback on the full manuscript. Our editors at the press, Julia Steer and Vicki Sunter, have been of great help in the process. We also thank the copy-editor for the press, Manuela Tecusan, Christoffer Lundbak Olesen for his help with compiling the book’s bibliography, and Lori Nash for doing the index. Anna Drożdżowicz also acknowledges support in late 2018 and 2019 from her postdoctoral project “Language, Meaning and Conscious Experience” (grant: 275251); this support was received from the Mobility Grant Fellowship Programme (FRICON) and funded by The Research Council of Norway and The Marie Skłodowska-Curie Actions.





# List of abbreviations

ACD	antecedent-contained deletion
AMT	Amazon Mechanical Turk
c-command	constituent command
CP	complementizer phrase; central processor
DP	determiner phrase
ECM	exceptional case-marking
EEG	electroencephalography
EPP	extended projection principle
ERP	event-related potential
FC	forced choice
LS	Likert scale
LTL	learned theory of language
ME	modest explanation; magnitude estimation
NCSD	non-conceptual structural description
NP	noun phrase
PP	prepositional phrase
SD	structural description
SLE	standard linguistic entity
TP	tense phrase
UG	universal grammar
VoC	Voice of Competence
VP	verb phrase



# The contributors

**Karen Brøcker** holds a PhD in science studies and an MA in linguistics from Aarhus University. Her research focuses on theoretical linguistics and philosophy of linguistics, in particular the theoretical assumptions underlying the use of linguistic intuitions as evidence for theories of grammar. Her PhD was part of the project “Intuitions in Science and Philosophy” at the Centre for Science Studies, Aarhus University.

**John Collins** is Professor of Philosophy at the University of East Anglia. He has written widely on the philosophy of language and mind, with especial reference to generative linguistics and its impact on analytical philosophy, and the concept of truth and the nature of propositions. He is the editor (with Eugen Fischer) of *Experimental Philosophy, Rationalism, and Naturalism* (2015) and (with Tamara Dobler) of *The Philosophy of Charles Travis* (2018), and the author of many articles and the monographs: *Chomsky: A Guide for the Perplexed* (2008), *The Unity of Linguistic Meaning* (2011), and *Linguistic Pragmatism and Weather Reporting* (2020).

**Michael Devitt** is Distinguished Professor of Philosophy at the Graduate Center of the City University of New York. His main research interests are in the philosophy of language, philosophy of linguistics, philosophy of mind, realism, and methodological issues prompted by naturalism. He is the author of the following books: *Designation* (1981); *Realism and Truth* (1984/1991/1997); *Language and Reality* (with Kim Sterelny, 1987/1999); *Coming to Our Senses* (1996); *Ignorance of Language* (2006); *Putting Metaphysics First* (2010); *Biological Essentialism* (forthcoming). He has co-edited (with Richard Hanley) *The Blackwell Guide to the Philosophy of Language* (2006).

**Anna Drożdżowicz** is postdoctoral researcher at the University of Oslo. She received her PhD from the University of Oslo in 2015. From 2016 to 2018 she was a postdoctoral researcher in the project “Intuitions in Science and Philosophy” at the Centre for Science Studies, Aarhus University. She works primarily in the philosophy of mind and language, but has also published papers in philosophical methodology, psycholinguistics, and the philosophy of psychiatry.

**Sam Featherston** studied German and social anthropology at the University of London before teaching English as a second language, German, and French in London schools. From 1991 to 1994 he was a Voluntary Service Overseas development volunteer in Tanzania, where he married his wife Véronique. Both carried out in-service training for English teachers in secondary schools. On his return he completed an MA in applied linguistics at Essex University, studying under Andrew Radford and Harald Clahsen, who then supervised his PhD thesis *Empty Categories in Language Processing*. He came to Tübingen in 1999, joined the English department in 2013, and obtained his professorship in 2014. His major research interests are grammar architectures, empirical approaches to

syntax, and the boundaries of processing and grammar. He is currently working on the relationships between clause types and binding across clause boundaries.

**Steven Gross** is Professor of Philosophy at Johns Hopkins University, with secondary appointments in Cognitive Science and in Psychological and Brain Sciences. Gross has published on a variety of topics in philosophy of language, philosophy of mind, and the foundations of the mind–brain sciences. His most recent publications have focused on perceptual consciousness and on cognitive penetration. Current projects include “anti-Bayesian” updating in vision and whether linguistic meaning is perceived or computed post-perceptually.

**Jana Häussler** works in the Fakultät für Linguistik und Literaturwissenschaft, Bielefeld University. She obtained her PhD from the University of Konstanz in 2009 with a dissertation on agreement attraction errors in sentence comprehension. Her research interests include the empirical foundation of syntactic theory, morphosyntax, the syntax–semantics interface, and sentence processing. Her current research centers on errors and deviations—how they affect comprehension, when listeners notice a deviation and, when they consider it an error, what the grammatical status of errors and deviations is.

**Tom S. Julek** is postdoctoral researcher at Saarland University. Tom takes an interest in the nature of morpho-syntactic knowledge, how it interacts with other linguistic layers such as semantics, and how this can be modeled. In his PhD thesis, with Mary Dalrymple (Oxford) and Greg Kochanski (Google), Tom was looking into various methodological questions surrounding acceptability judgment tasks. He currently works on a project with Elke Teich on how diachronic changes in information density surface at various linguistic levels.

**Frederick J. Newmeyer** has been Professor of Linguistics at the University of Washington, where he had taught since his 1969 PhD until his retirement June 2006. He is now Professor Emeritus at Washington and Adjunct Professor at the University of British Columbia and at Simon Fraser University. Newmeyer is the author or editor of twelve books, including *Linguistic Theory in America*, *Language Form and Language Function*, and *Possible and Probable Languages*. In 2002 Newmeyer was president of the Linguistic Society of America.

**Georges Rey** (PhD Harvard, 1978) is Professor of Philosophy at the University of Maryland. Rey has previously held positions at SUNY Purchase and the University of Colorado, and visiting positions at the MIT, at Stanford University, and at the Centre de Recherche en Épistémologie Appliquée (CREA) and the École Normale Supérieure (ENS) in Paris. With Nicholas Allott, Carsten Hansen, and Terje Lohndal, he runs a regular summer institute on language and mind in Oslo. He is the author of *Contemporary Philosophy of Mind* (1997), as well as of innumerable articles in this area (available at [sites.google.com/site/georgesrey](http://sites.google.com/site/georgesrey)) and is presently completing *Representation of Language: Philosophical Issues in a Chomskyan Linguistics* (forthcoming).

**Carlos Santana** is Assistant Professor of Philosophy at the University of Utah and works primarily in the philosophy of linguistics, as well as in the philosophy of the environmental sciences.

**Samuel Schindler** is Associate Professor of Philosophy of Science at the Centre for Science Studies at Aarhus University in Denmark. He holds a BSc in Cognitive Science and received his MA and PhD in Philosophy from the University of Leeds (UK). His research focuses on methodological and epistemological issues in the history and philosophy of science. His publications include *Theoretical Virtues in Science: Uncovering Reality through Theory* (CUP, 2018). He has won two multi-year research grants from two different national funding bodies, one of which was for the project “Intuitions in Science and Philosophy”.

**Carson T. Schütze** is Professor of Linguistics at the University of California, Los Angeles. He has done research in syntax, morphology, first language acquisition, and language processing, as well as in linguistic methodology, on which he has (co-)authored ten encyclopedia and handbook chapters and review articles, in addition to his monograph *The Empirical Base of Linguistics* (1996, reprinted 2016). He has published on case, agreement, expletives, and auxiliaries, often with a focus on Germanic, in journals such as *Linguistic Inquiry*, *Syntax*, *Language*, *Lingua*, and *Language Acquisition*. He has also co-edited three large volumes on psycholinguistics.

**Jon Sprouse** is Professor of Linguistics at the University of Connecticut. His research focuses on experimental syntax—the use of formal experimental measures to explore questions in theoretical syntax—and particularly on acceptability judgments. He is co-editor of *Experimental Syntax and Island Effects* (with Norbert Hornstein, 2013) and editor of the forthcoming *Oxford Handbook of Experimental Syntax*.



# 1

## Introduction

*Karen Brøcker, Anna Drożdżowicz, and Samuel Schindler*

In recent years there has been an increased interest in the evidential status and use of linguistic intuitions in both linguistics and philosophy. This volume offers the most recent cutting-edge contributions from linguists and philosophers who work on this topic. In this introductory chapter we present the two main questions that have been at the core of these debates and that will be systematically covered in this volume; then we provide a synopsis of the forthcoming chapters.

Modern linguists, particularly in the Chomskyan tradition, regularly use native speakers' intuitive judgments about sentences as evidence for or against their linguistic theories. These judgments are typically about morphosyntactic, semantic, pragmatic, or phonetic aspects of sentences. In particular, judgments of morphosyntactic well-formedness are often called acceptability judgments in the literature. It is common practice for linguists to informally use their own or their colleagues' intuitions as evidence for theories about grammar.

This practice of relying on linguistic intuitions as evidence—and, in particular, the practice of relying on linguists' intuitions as evidence—raises two questions. (1) What is the justification of using linguistic intuitions as evidence? We can call this *the justification question*. (2) Are formal methods of gathering intuitions epistemically and methodologically superior to informal ones? We can call this *the methodology question*. The present volume brings together philosophers and linguists from these two strands of the debate in order to shed light on the two questions. The more specific questions discussed in this volume are: What is the etiology of linguistic intuitions? In other words what are linguistic intuitions caused by, speakers' linguistic competence or speakers' linguistic experience? How big is the risk of bias and distortion when linguists use their own intuitions as evidence? Can the evidential value of linguistic intuitions be improved by systematically studying the intuitions of non-linguists? Or are there good reasons for preferring the judgments of expert linguists? Is the gradience of acceptability judgments indicative of gradient grammar, or rather of performance factors? Do theoretical reflections improve or worsen the quality of one's intuitions?

In what follows, we give a brief introduction to the justification question and the methodology question. We also summarize the individual chapters that make up the two parts of this volume. Let us start with the **justification question**.



For linguistic intuitions to be usable as evidence in the construction of theories of grammar, it must be the case that such intuitions are actually informative about the grammar of the speaker's language. But why should we think that to be the case? On the face of it, using intuitions as evidence seems highly unscientific. Physicists, for example, don't use their intuitions when they figure out the laws underlying the behavior of a physical system. On the contrary, they often go against them. Likewise, doctors don't just rely on their intuitions when trying to determine the disease that matches a patient's symptoms, but instead use medical tests. And engineers don't build a bridge on the basis of their intuitions that it might hold up. We certainly would not be inclined to trust the intuitions of lay subjects when doing these things. Why should we then think that linguistics is somehow privileged when it comes to the use of intuitions as evidence?

A widely discussed account of why linguistic intuitions can provide evidence comes from the Chomskyan tradition, according to which linguistics is a branch of cognitive psychology (Smith and Allott 2016, ch. 3). On this view, the objects of linguistic study are the aspects of the mind or brain that are responsible for our language abilities. Linguistic intuitions can provide evidence about the computational operations of these mind-brain mechanisms because—and to the extent that—their etiology involves those mechanisms. Importantly, these mechanisms typically do not exhaust the etiology of linguistic intuitions. Other mental systems are also involved in their production (Maynes and Gross 2013). A classic example is that of intuitions that sentences with center embeddings are unacceptable. Such intuitions are widely considered to reflect memory constraints on parsing.

Recently the justification question has been brought to the fore by the philosopher Michael Devitt in several publications (see e.g. Devitt 2006b, 2006c, 2010a, 2010b, 2013b). He attributes to generative linguists a view according to which linguistic intuitions are what he calls the Voice of Competence (VoC): the informational content of the intuition is supplied by the speaker's linguistic competence. According to Devitt, this view is epistemologically highly immodest in the cognitive mechanisms it postulates. Devitt himself argues for a view on which linguistic intuitions are every-day judgments about sentences—judgments with no special etiology, made according to the speaker's (folk) theoretical concept or theories about "grammaticality." Critics have argued that this view accounts for the wrong kind of linguistic intuitions, as it entails that experts with more relevant experience and better concepts than the ordinary speaker will, overall, make better intuitive judgments than lay subjects. There is evidence that this is not the case (Gross and Culberston 2009).

The attribution of the VoC view to generative linguists has also been heavily criticized, and several philosophers of linguistics have suggested alternative, competence-based views. On these views, competence plays a central role by supplying some special input for linguistic intuitions without directly supplying the informational content of intuitions. On Textor's (2009) account, the

competence provides linguistic “seemings,” meaning that sentences simply “present themselves” as well formed or not to the speaker. On Rey’s (2014b; forthcoming-b; this collection) account, the speaker’s linguistic competence provides structural descriptions of sentences that then form the basis for intuitive judgments. On the accounts by Maynes and Gross (2013), Gross (this volume), and Drożdżowicz (2018), the speaker’s linguistic competence provides error signals or some other output from a monitoring mechanism and these then become, one way or another, the basis for linguistic intuitions. In reply, Devitt has criticized several of these accounts, either for lacking detail about how the special input from competence is transformed into the informational content of linguistic intuitions or for essentially reducing to his own position, according to which linguistic intuitions are “central processor” judgments (Devitt 2013b).

These accounts of how linguistic intuitions are generated also offer different answers to the justification question. On the account that Devitt argues for, we are justified in using linguistic intuitions as evidence to the degree that the person making them has a good amount of experience with his or her language and a good (folk) linguistic theory to apply when making his or her judgment. On both VoC and Devitt’s critics’ views, we are justified in using linguistic intuitions as evidence because of the causal role that the speaker’s linguistic competence plays in the etiology of linguistic intuitions. The justification question may be approached in other ways than by appealing to the etiology of linguistic intuitions, however. Alternative options include calibrating linguistic intuitions with other sources of data (known or suspected to be justified themselves) and appealing to the fruitfulness of relying on linguistic intuitions as evidence. A critical discussion of these options can be found in Santana’s chapter (this volume).

In this volume, the following chapters address the justification question. Steven Gross starts by summarizing the VoC view as characterized by Devitt as well as Devitt’s own preferred account of the etiology of linguistic intuitions. He then argues that these two accounts do not exhaust the possibilities for the etiology of linguistic intuitions. He presents an alternative view, according to which linguistic intuitions are based on error signals that are produced by monitoring mechanisms that are constrained by the speaker’s mental grammar. It is due to this feature, according to Gross, that linguistic intuitions provide relatively reliable evidence about speakers’ languages. In support of this view, Gross reviews the literature on error signals and monitoring mechanisms. He notes that error signals could plausibly explain some features often associated with linguistic intuitions such as their negative valence, their motivational force, and their gradedness. This account is meant to work most straightforwardly for judgments of unacceptability, but Gross examines some ways in which it might be extended to judgments of acceptability and other types of linguistic intuitions as well. He argues that, if correct, this account might support a view on which linguistic intuitions are the VoC, depending on what exactly the content of error signals turns out to be.

Another defense of a version of the VoC view can be found in the chapter by Georges Rey. On his view, linguistic intuitions provide special evidence of the speaker's linguistic competence because they have a special etiology. Rey's account of the etiology of linguistic intuitions is closely tied to linguistic parsing. A linguistic intuition is based on a structural description of the sentence that is provided by the speaker's parser, which, in turn, is constrained by the speaker's mental grammar. Linguistic intuitions can provide reliable evidence about the speaker's language, because the speaker's linguistic competence is involved in their production. On Rey's version of VoC, the subject gives a report about how the sentence sounded to him or her on the basis of a structural description provided by the parser. The structural descriptions are non-conceptual, which explains why ordinary speakers have no conscious awareness of interpreting structural descriptions. Furthermore, Rey presents some empirical evidence that he takes to count in favor of his account that linguistic intuitions are based on structural descriptions.

Michael Devitt's chapter is a reply to the previous two, by Gross and Rey. Devitt first summarizes the VoC view as he has characterized it and his own preferred account, the modest explanation. On VoC, speakers' linguistic competence supplies the informational content of linguistic intuitions. On the modest explanation, linguistic intuitions are, like any other intuitive judgments a person may make, immediate and unreflective reactions formed in a central processing system. Devitt then responds to Rey's defense of a version of VoC (chapter 3). According to Devitt, Rey's evidence shows that parsing involves structural descriptions, not that *linguistic intuitions* also involve them. Devitt also questions whether structural descriptions could provide the *informational content* of linguistic intuitions. He considers the possibility that the version of the VoC view that Rey argues for does not require that structural descriptions provide the informational content of linguistic intuitions, in which case, he argues, Rey's view would not be a version of VoC. Devitt also responds to the account presented by Gross (chapter 2), in particular to the claim that it could provide a defense of VoC. He questions the idea that the parser will output a state with content that explicitly evaluates the string in question, which is what is needed if the competence is to provide the informational content of intuitions. According to Devitt, neither Rey nor Gross present enough evidence to support VoC. He claims that both accounts rely on novel assumptions about the mind that the modest explanation does not require and that, for reasons of simplicity, we should prefer the latter.

The previous chapters are all part of the debate over the VoC view and alternative ways in which to justify the evidential use of linguistic intuitions. The chapter by Brøcker focuses on another question that has been central to the debate surrounding the VoC view: whether or not it is the received view among generative linguists. As mentioned, Devitt characterizes VoC as the view that

linguistic intuitions are reliable evidence because the informational content of judgments is supplied by the speaker's linguistic competence. He attributes this view to generative linguists; but whether generative linguists in fact subscribe to it or not has been much debated. Bröcker presents data from a questionnaire study that suggest that this is not the case. According to her findings, generative linguists do subscribe to a competence-based view, but one that does not entail that the informational content of linguistic intuitions is provided by the speakers' competence. With this question answered, the debate on the justification for the evidential use of linguistic intuitions can focus on the normative issue of what view we ought to adopt.

In his chapter, John Collins develops a conception of linguistic intuitions in order to support their evidential role in linguistics. Collins' account covers both *syntactic* intuitions, that is, intuitions that reveal the conditions for a sentence to have an interpretation, and *semantic* intuitions, that is, intuitions that reveal the constraints on what can be said with a sentence that has such a fixed interpretation. He proposes that syntactic and semantic intuitions should be treated as two aspects of the same phenomenon, in other words as intuitions about what can be said with a sentence. According to Collins, language users do not have direct access to linguistic facts, be they syntactic or semantic. Rather, he argues, it is the theorist's task to figure out what such intuitions reveal about semantics or syntax (or both). In support of this account, Collins presents several observations about how syntactic and semantic intuitions are typically interpreted by theorists. The proposed view is also meant to accommodate and explain some of the puzzling cases of linguistic intuitions, where one appears to have interpretation without grammaticality and grammaticality without interpretation. Collins argues that, so described, both cases are illusory and proposes that in such situations grammaticality is actually aligned with interpretability.

The scope of the volume goes beyond issues concerning syntactic intuitions. The chapter by Anna Drożdżowicz focuses on linguistic intuitions about meaning. Speakers' intuitive judgments about meaning are commonly taken to provide important data for many debates in philosophy of language and pragmatics. Drożdżowicz discusses two strategies that aim to explain and justify the evidential role of intuitive judgments of this sort. The first strategy is inspired by what is called the *perceptual* view on intuitions, which emphasizes the experience-like nature of intuitions. The second strategy is reliabilist in that it derives the evidential utility of intuitions about meaning from the reliability of the psychological mechanisms that underlie their production. Drożdżowicz argues that we have strong reasons to favor the reliabilist view. In support of her claim, she presents evidence suggesting that the reliabilist strategy fares better than the experience-based one on three parameters: it can better capture the practice of appealing to judgments about meaning; it can respond to recent criticisms from experimental philosophy concerning the diversity of such judgments; and it requires fewer epistemological commitments.

An entirely different strategy in the debate concerning the evidential status of linguistic intuitions is developed by Carlos Santana. In his chapter, Santana discusses critically three approaches to justifying the evidential use of intuitions in linguistics: the first one claims that linguistic intuitions *lead to fruitful scientific discourse*, the second one that they *have a close causal relationship with language*, and the third one that they are *reliable*. After examining the shortcomings of each of these approaches, he argues that linguistic intuitions do not actually play any evidential role in linguistic theories. Rather, Santana argues, they do frequently play a non-evidential role by delimiting what belongs to the shared background and which questions are currently debated in linguistics. On this account, when linguists use intuitions, they appeal to shared assumptions or established theories. As Santana argues, this conception allows for a role of intuitions in linguistics, but encourages caution in cases of complex or unusual sentences that may result in judgments that might not be part of the consensus among linguists.

Unlike the justification question, which has been debated predominantly among philosophers, **the methodology question** has been thoroughly discussed among generative linguists themselves. This interesting difference may be due to several reasons. One important reason may have to do with the fact that the methodology question is of more immediate practical interest to linguists, whereas the justification question may seem just too far removed from their day-to-day work. Be that as it may, linguists such as Carson Schütze and Wayne Cowart have made significant contributions to debates concerning the methodology question, which started in the 1990s.

Following Chomsky's groundbreaking publication of *Syntactic Structures* in 1957, syntactic intuitions were standardly collected informally, from just one or a few native speakers, in some cases from the linguist and their colleagues themselves. Schütze (1996) provides an early critical and comprehensive discussion of the use of linguistic intuitions as evidence for grammatical theories. Cowart (1997), also critical of informal methods, makes several suggestions as to how linguists could gather syntactic intuitions more systematically and within properly controlled experimental designs. The move away from the informal method of data collection within syntax is often referred to as *experimental syntax*.

The experimentalists argue for a methodological reform. They believe that linguistic intuitions should be collected in carefully designed studies, preferably using large numbers of lay subjects, large samples of test items, an appropriate study design, and statistical tests. Some proponents of experimental syntax have also argued that grammars ought to accommodate the widely accepted gradience of acceptability judgments and that the traditional, strict dichotomy between grammatical and ungrammatical is mistaken (see e.g. Featherston 2007). In response to this methodological challenge posed by experimentalists, some linguists have recently argued that linguistic intuitions produced in the armchair do in fact live up to reasonable methodological standards. Some of the most

prominent works in this area are the studies conducted by Jon Sprouse and his colleagues (e.g. Sprouse and Almeida 2012a; Sprouse et al. 2013), which show that the results of formal and informal studies overwhelmingly coincide with each other, undermining at least some of the worries concerning the traditional method that were raised by the experimentalists.

Here is now an outline of the chapters that address the methodology question in this volume. Frederick Newmeyer focuses on a topic that relates to both the justification and the methodology question. His goal is to investigate good methodological practices in linguistics; and he argues that corpus data can be used to validate the evidential use of linguistic intuitions. Proponents of conversational corpus data sometimes argue that heavy reliance on intuition data in generative linguistics has led to wrong grammatical generalizations (Thompson and Hopper 2001). These claims are usually backed by failed attempts to replicate, with conversational corpus data, specific results that are based on intuition data. Newmeyer tests some of these claims and finds that, if one uses a sufficiently large corpus, the investigated results based on intuition data are replicated with conversational corpus data. He concludes that grammars built on linguistic intuitions do not differ markedly from the ones built on conversational corpus data and that, as evidence for grammars, linguistic intuitions are no less relevant than interactional data. Newmeyer also outlines what he takes to be general benefits and drawbacks of using corpus data.

In his chapter, Sam Featherston criticizes some syntacticians for an alleged “dataphobia” and argues for the power of experiments to generate data of better quality. In particular, Featherston takes issue with the idea that the traditional, informal way of generating data in linguistics, which he calls “armchair linguistics,” has been vindicated by two recent studies—namely the ones already mentioned, by Sprouse and Almeida (2012a) and by Sprouse, Schütze, and Almeida (2013). These studies conclude that the judgments found respectively in one of the leading linguistics journals and in linguistic textbooks do not substantially diverge from the judgments made by the lay subjects. Featherston argues that armchair judgments are in general less sensitive and more noisy than data gathered experimentally from a large number of subjects. Featherston criticizes the two studies for using a relative scale rather than the standard categorical scale of grammaticality. According to him, the use of categorical scales considerably increases error rates. Moreover, Featherston argues that the studies by Sprouse and colleagues are not suitable for building grammars, since they compare only pairs rather than multiple items. Finally, Featherston emphasizes that these studies only give an indication of the false positive rate of acceptability judgments made by professional linguists, in other words they can only show that linguists make grammatical “distinctions” not warranted by the data. However, for Featherston, the more important issue is that linguists do not draw *enough* grammatical distinctions.

Experimental testing of empirical syntax claims with non-linguists is the topic of Carson Schütze's chapter. Schütze reports three experiments where the acceptability judgments given by naïve subjects were probed and argues that previously reported high convergence rates with expert or linguists' judgments (e.g. Sprouse et al. 2013) may be less informative than it has been assumed. According to Schütze, the current methodology of computer-based acceptability experiments allows naïve subjects to give ratings that do not truly reflect their acceptability judgments. Schütze supports this claim with results from the second part of his study, where experimenters conducted follow-up interviews in which they asked participants about the ratings they gave to particular items; the aim was to determine what interpretation or parse they had assigned, whether they had missed critical words, and so on. Schütze concludes that if the experimental results are to be informative for linguistic questions, the reasons behind subjects' responses have to be better understood. The chapter presents an interesting challenge to the current experimental approaches to syntax. Schütze suggests that progress can be made in this domain by improving current experimental designs and by systematically applying the method of structured follow-up interviews. He appeals here to an interesting but possibly controversial idea—namely that language users can have some kind of conscious access to why they are making the judgments they do. This idea can be assessed by readers themselves by consulting this collection's chapters on the justification question.

A defense of the current methodological practice of appealing to acceptability judgments in linguistics comes from another key figure in recent methodological debates. In his contribution to this volume, Jon Sprouse discusses the theoretical underpinnings of acceptability judgments, the empirical properties of acceptability judgments, and whether the theory and the empirical data warrant the continued use of acceptability judgments in linguistics. Sprouse's answer to this question is a qualified "yes": pending any future empirical evidence to the contrary, acceptability judgments are at least as good evidence as other data types in language research. More specifically, Sprouse argues that, on the empirical front, acceptability judgments are reliable across tasks and participants, sufficiently sensitive, and relatively free from theoretical bias. On the theoretical front, Sprouse argues that syntacticians have (i) a plausible theory of the source of acceptability judgments (perception, not introspection), (ii) an "experimental logic" for (informally) generating reliable acceptability judgments, and (iii) a set of evaluation criteria that are similar to the evaluation criteria used for other data types. Nevertheless, Sprouse cautions that there is no "scientific" reason to prefer acceptability judgments over other types of data. According to him, the continued use of acceptability judgments rather than other types of data is, therefore, mostly a pragmatic choice.

One of the key interests in the methodological debate has been the question whether gradience in acceptability judgments implies gradience in grammar.

The chapter by Jana Häussler and Tom Juzek investigates expert and lay acceptability judgments, as well as their gradience. They report the results of experiments in which they presented their lay subjects with sentences they extracted from papers published in the established journal *Linguistic Inquiry*. They found that a substantial number of sentences that were deemed ungrammatical by linguists in their *LI* publications were rated acceptable (to some extent or another) by the lay subjects. Häussler and Juzek argue that these sentences cannot be accounted for by known “grammatical illusions.” They also rule out that their results are artifacts caused by the experimental design they used; and they don’t think that the gradience in acceptability was determined by performance factors. They conclude that the assumption usually made, that grammar is categorical, should probably be given up.

The use of intuitions as evidence is not unique to linguistics. The chapter by Samuel Schindler and Karen Brøcker compares the debates concerning the methods for collecting linguistic intuitions to similar debates that are going on in philosophy about the collection of philosophical intuitions. In both fields, it has been argued that the traditional, informal method of collecting intuitions is unscientific and yields results that lack reliability, validity, and sensitivity. In fact some philosophers have appealed to experimental syntax in order to motivate the use of experimental methods in philosophy (Machery and Stich 2012). Schindler and Brøcker critically assess claims from the experimental syntax debate that experimental methods are superior to the traditional armchair method on all these counts. They find that, while experimental methods work well for avoiding theoretical bias for example, using the traditional method has its benefits as well, for instance in reducing the risk of confounding performance factors. On the basis of these qualifications, Schindler and Brøcker conclude that experimental syntax cannot unconditionally serve as a model for how to collect intuitions in philosophy. Schindler and Brøcker’s chapter should also be relevant to readers interested in a critical evaluation of experimental syntax. It can profitably be read together with the chapters by Featherston and in particular by Häussler and Juzek.

In sum, the chapters of this volume shed new light on whether and how linguistic intuitions can be used in theorizing about language. Hence it is hoped that they will help advance recent debates on the nature and methodological roles of linguistic intuitions.





PART I

ACCOUNTS OF LINGUISTIC  
INTUITIONS



## 2

# Linguistic intuitions

## Error signals and the Voice of Competence

Steven Gross

### 2.1 Introduction

A substantial portion of the evidential base of linguistics consists in linguistic intuitions—speakers’ typically non-reflective judgments concerning features of linguistic and language-like stimuli. These judgments may be elicited, for example, in answer to such questions or requests as:

Is the following sentence natural and immediately comprehensible, in no way bizarre or outlandish (cf. the gloss on “acceptability” in Chomsky 1965)?

*She likes chocolate anymore.*

Just going by how it sounds, /ptlosh/ is not a possible word in English, but /losh/ is. Please rate the following candidates on a scale from 1 (definitely not possible) to 5 (definitely possible):

/fant/, /zgant/, ...

Do the bolded terms in this sentence co-refer (Gordon and Hendrick 1997)?

*John’s roommates met **him** at the restaurant.*

Which phrase are you most likely to use with a friend when leaving (Labov 1996)?

(a) *goodbye* (b) *bye* (c) *bye-bye* (d) *see you* (e) *so long*

Because of their evidential centrality, linguistic intuitions have been the focus of much methodological reflection. There are well-known worries concerning both how they are collected and how they are used: for example, linguists often use themselves as subjects, risking confirmation bias; they may gather too few intuitions to enable statistical analysis; and they may rely on intuitions too much, failing to seek converging (or disconfirming) evidence of other sorts. There are also well-known replies to these worries. For example, intuitions are now often gathered from a statistically well-powered number of naïve subjects in a controlled

setting; the comparisons that such work has enabled with linguists' own intuitions have tended to validate the latter; and there is an ever-growing exploration of other sources of evidence. Much more can be said on these matters. (For reviews with further discussion and references, see e.g. Schütze 1996, 2011; Sprouse and Schütze forthcoming.) I mention these familiar debates in order to set them aside and to distinguish them from this chapter's main question. All parties agree that linguistic intuitions *can* be and often are a good source of evidence. Why are they? What about their etiology enables them to be a good source of evidence?

This chapter suggests that error signals generated by monitoring mechanisms play a role. It will not establish that this is so, but aims instead to render it a plausible, empirically motivated hypothesis and to consider some of its philosophical consequences. There exists a sizable body of psycholinguistic research on language-related monitoring. But its potential relevance to the etiology, and thus to the evidential status, of linguistic intuitions has not been much explored.<sup>1</sup>

It is not intended that the proposal should extend to *all* linguistic intuitions. Methodological discussions of linguistic intuitions often focus on acceptability judgments as evidence in syntax, but judgments concerning other features—in the examples above, pronounceability, co-reference, and likelihood of use, but not only these—play a significant evidentiary role as well. It is far from obvious that the same account can be given for each. Thus, after exploring the possible role of error signals in generating some judgments of unacceptability, I suggest that linguistic intuitions in fact do not form a natural kind with a shared etiology, discussing in particular the role of utterance comprehension. It is also no part of my proposal that, in those cases where error signals do play some role, there are no other significant causal factors or sources of warrant.

The etiology of linguistic intuitions is of interest for several reasons, beyond the intrinsic interest of better understanding any instance of the mind–brain's goings-on. For one, progress in this specific case contributes to our understanding of intuitive judgment more generally, a topic of significance for both psychologists and philosophers (DePaul and Ramsey 1998). For another, there is the aforementioned question of the evidential status of linguistic intuitions. While their ranking as good evidence may not *require* a deeper knowledge of their etiology (Culbertson and Gross 2009), such knowledge can certainly clarify and further secure it. Finally, a better understanding of linguistic intuitions' etiology enables us to answer more fully a challenge raised by Michael Devitt (2006b, 2006c) to mentalist conceptions of linguistics—conceptions according to which linguistics is a branch of psychology investigating mental mechanisms and processes implicated specifically in language acquisition and linguistic behavior. Indeed, it is this challenge—and its bearing on broader questions in

<sup>1</sup> Important exceptions include Sprouse (2018) and especially Matthews (n.d.).

the philosophy of linguistics—that motivates and frames the present study. Accordingly, I begin by providing some background on Devitt’s views and the discussion it has elicited.

## 2.2 Devitt on the “Voice of Competence” and his modest alternative

Why can linguistic intuitions serve as evidence in linguistics? Devitt (2006b, 2006c) contrasts two answers.<sup>2</sup> According to the “Voice of Competence” view that he rejects, linguistic intuitions are the product of a modularized language faculty that alone delivers the relevant information, or content, to mechanisms responsible for judgment. Judgments with such an etiology, on this view, can provide fruitful evidence for linguistic theorizing, because they directly reflect constraints built into mechanisms specifically implicated in language acquisition and linguistic behavior, and thus give speakers privileged access to linguistic facts. This is the view that Devitt ascribes to proponents of a mentalist conception of linguistics.<sup>3</sup>

According to Devitt’s own “modest view”, while linguistic competence may give access to the phenomena that linguistic intuitions are about, it does not supply the content of these intuitions. Rather intuitions are arrived at via ordinary empirical investigation, by using the mechanisms responsible for judgment more generally (“central systems”). Linguistic intuitions, thus produced, can provide evidence for linguistic theorizing because experienced language users, having been immersed in language, make fairly reliable judgments about many linguistic matters, just as those immersed in their local flora may be fairly reliable about aspects of it. Devitt calls his view “modest” because it need not advert to any mental states or processes beyond those to which any account of judgment is committed. Importantly, according to Devitt, linguistic intuitions, because they are empirical judgments, are theory-laden, as all such judgments are.

Devitt argues that his view provides a *better* answer to the question “Why are linguistic intuitions a good source of evidence?” Among his main arguments is this: not only do we lack a positive account of how a module embodying grammatical constraints might generate intuitions suited to play the evidential

<sup>2</sup> Devitt has developed and defended his views in a large number of subsequent papers, which can be found on his webpage. See also his reply in this volume.

<sup>3</sup> Context makes clear that Devitt is here using the word “information” not in the information-theoretic sense, but to indicate representational content. Henceforth I use “content,” in order to avoid confusion. Devitt uses “modular” in the Fodorean sense (Fodor 1983). Mentalism about linguistics does not require accepting all aspects of Fodorean modularity (see e.g. Collins 2004 for differences between Fodor and Chomsky on linguistic competence and modularity); and there is now a variety of conceptions of modularity on the market (e.g. Carruthers 2006). I will attempt to bracket these matters.

role the mentalist requires, but it is hard to see how such an account might go; we lack so much as “the beginnings of a positive answer” (Devitt 2006b: 118). (Indeed, linguists themselves sometimes lament our relative ignorance of aspects of the etiology of linguistic intuitions; see Schütze 1996 and Goldrick 2011.) It is this challenge that the present chapter aims to address. (I return below to some other considerations that Devitt raises; still others are addressed in Maynes and Gross 2013.)

It might illuminate why Devitt thinks that there is a problem in the first place if one notes that he raises this challenge specifically for conceptions of linguistic modules according to which grammatical constraints are embodied in computational operations rather than explicitly represented. If grammatical constraints were explicitly represented, then—Devitt suggests—linguistic intuitions might be derived within the language module in a quasi-deductive fashion. (Devitt assumes that the relevant intuitions are judgments of *grammaticality*. But in current practice judgments of grammaticality are, typically, not sources of evidence but rather reflective judgments made by *theorists* to *explain* judgments of acceptability and other sources of evidence; see e.g. Myers 2009; we return to this shortly.) Devitt’s challenge is raised in reply to those who reject the explicit representation of grammatical constraints—arguably the vast majority of researchers in the field. It asks how else such intuitions could arise in a way that affords the speaker privileged access to the linguistic facts; and it suggests that there may not be any other way. (Devitt rejects the Voice of Competence view also for conceptions on which grammatical constraints *are* explicitly represented—albeit he does so on other grounds.)

But more is at stake than just the source and epistemic status of linguistic intuitions. Devitt’s argument for his modest view is part of a larger argument against mentalist conceptions of linguistics. Recall that, according to such conceptions, linguistics is a branch of psychology that investigates mechanisms specifically implicated in language acquisition and linguistic behavior. According to Devitt, linguistics is not, or ought not to be, so conceived. Rather its object is, or should be, linguistic reality: the facts about language, or about specific languages—which exist, independently of any specific speaker, as conventions among populations (as opposed to as Platonic abstracta, *à la* Katz 1981). Devitt thus endorses an E-language rather than an I-language conception of what linguistics is, or ought to be, about (Chomsky 1986b). His view of linguistic intuitions fits into his larger argument as follows: *if* the Voice of Competence view best explained why linguistic intuitions can be evidence, that would supply a consideration in favor of the mentalist conception. But, argues Devitt, it does not best explain it; hence it does not supply such a consideration. Answering Devitt’s challenge thus speaks to this element of his abduction in favor of his anti-mentalist conception of linguistics.

### 2.3 Clarifying the options and locating the current proposal

In fact matters are more complicated than deciding between the Voice of Competence view and Devitt's modest alternative. These two views do not exhaust the possibilities, and indeed, in previous work I have argued against both options. Briefly reviewing those arguments will help clarify the claims of the current chapter.

Against Devitt's view, Culbertson and Gross (2009) argue that one doesn't find in linguistic intuitions the divergence this view predicts. Devitt maintains that linguistic intuitions are theory-laden and so can diverge across speakers with different relevant background beliefs, including different commitments concerning linguistic theories. Indeed, Devitt, far from worrying about confirmation bias, argues that linguists should prefer their own linguistic intuitions to those of native speakers, who are naïve about linguistics; for the better (more reliable) linguistic intuitions will be those of speakers with better theories. But we found a high degree of consistency among subjects with very different degrees of expertise in linguistics—subjects ranging from total non-experts to practicing syntacticians. This suggests that linguistic intuitions—at least of the sort we elicited—may be fairly stable across changes in relevant background beliefs and experience, and thus are not theory-laden in a way or to a degree that matters to linguistic inquiry. They may rather reflect their pre-judgmental etiology to a particularly robust degree.<sup>4</sup>

On the other hand, Maynes and Gross (2013) argue, *inter alia*, against the Voice of Competence view—or at least they reject the idea that mentalists should see themselves as committed to it. Recall that Devitt builds into his characterization of the view the idea that the language faculty itself outputs the *content* of the intuition (henceforth the “content requirement”). But there is nothing about mentalism that requires this. Consider the judgment that some string is unacceptable. Mentalists need not commit themselves to the view that the language faculty itself outputs a state with the content *That string is unacceptable*. It can suffice that the parser fails to assign a structural description to the string and that the *absence* of a parse can in turn play a causal role in the process that leads the speaker to judge that the string is unacceptable.

The inclusion of the content requirement stems from Devitt's emphasis on speakers' privileged access to linguistic facts. For, if the language module supplies the content of linguistic intuitions, that might explain the source of this privilege.

<sup>4</sup> Devitt (2010a) replies and Gross and Culbertson (2011) respond. “Reliable” is used here not in the psychologist's sense of being consistently produced in similar circumstances, but in the philosopher's sense of tending to be accurate (as with a reliable thermometer); this is what psychologists would call validity. Note that, although relative expertise in linguistics did not matter in our experiment, one group—those with no formal exposure to the mind-brain sciences at all—was an outlier. Culbertson and Gross (2009) hypothesize a deficiency in task knowledge.



Recall, however, that judgments of grammaticality (as opposed, for example, to judgments of acceptability) are not, or no longer, typical of the metalinguistic judgments linguists rely on as evidence. Mentalists, in relying on the kinds of linguistic intuitions they in practice do, thus need not assume that speakers have privileged access to whether strings are grammatical. (Perhaps speakers have defeasible privileged access regarding acceptability.) Mentalists need only maintain that linguists' theorizing involves an abduction from linguistic intuitions—and from any other available considerations—to claims about a language faculty. Thus they might, for example, elicit acceptability judgments under a variety of conditions and with a variety of stimuli, intending to control for alternative explanations. This does not require that speakers have privileged access to the ground or causal source of their judgments—in particular, privileged access to why they judge a sentence (un)acceptable. Indeed, sentences can be unacceptable for any number of reasons. To take a classic example, multiply center-embedded sentences may be judged unacceptable owing to memory limitations instead of a grammatical violation.

If linguistic intuitions are not theory-laden in the way Devitt expects, and if mentalists may reject the content requirement, then the positions Devitt discusses are not exhaustive. Thus, with Devitt's alternative rejected in Culbertson and Gross (2009), Maynes and Gross (2013) defend a mentalist conception of linguistic intuitions *sans* the content requirement. This conception rejects as well the idea that a mentalist conception of the evidential status of linguistic intuitions requires that speakers possess privileged knowledge regarding grammaticality, while allowing that the special role grammaticality constraints can play in the generation of linguistic intuitions may enable those intuitions to serve as evidence for those constraints, in a manner relatively unaffected by changes in relevant belief and expertise.

Against this background I can clarify the aims of the present chapter. The suggestion bruited above, that a failure to parse can cause a judgment of unacceptability, is a rather bare etiological claim, even if "sufficient unto the day" in the context of Maynes and Gross' (2013) response to Devitt. In what follows I buttress this reply by developing further suggestions concerning the etiology of linguistic intuitions. In particular, I suggest that error signals generated by monitoring mechanisms may play a role in some cases. I also suggest, more briefly, that in other cases the intuition's etiology may amount to little more than the etiology of comprehension itself.

Interestingly, these further suggestions provide some grounds for entertaining a stronger thesis than the one I previously defended. For, although mentalism *per se* need not build in the content requirement, the error signal story, as we shall see, may allow the content requirement to be satisfied, at least by some intuitions—and similarly, in some cases, for the comprehension account. The Voice of Competence view (or something like it, as we shall see) may thus be true after