

# 1 Introduction

In February of 2013, *The Journal of Neuroscience* published an article under the title 'Foxp2 mediates sex differences in ultrasonic vocalization by rat pups and directs order of maternal retrieval'. Stories about the paper quickly made the rounds in the popular media, with eye-catching headlines:

- 'Sorry to interrupt, dear, but women really do talk more than men (13,000 words a day more to be precise)' (MacRae 2013)
- 'Chatty Cathy, listen up: New study reveals why women talk more than men' (Kim 2013)
- 'Brain protein may explain why girls talk more than boys' (Castillo 2013)

Reports like these managed to make *The Huffington Post* look tame by comparison ('Biological evidence may support idea that women talk more than men, study says'). One frequent reaction was that the study was a waste of money: everybody knows women talk more than men; why do we need a scientific experiment to prove it?

Given publicity like this, many readers would be surprised to learn that the study did no such thing. In fact, the authors didn't examine living humans at all; they compared male and female baby mice ('pups'), with the following results:

- Male pups made more vocalizations than females when separated from their mothers.
- Male pups had higher levels of the *FOXP2* protein than females in some regions of their brains.
- Inhibiting the *FOXP2* gene in the pups' brains eliminated the sex difference: males vocalized less, and females vocalized more.
- In a sample of brain tissue from 10 young human children, the girls had somewhat higher levels of the *FOXP2* protein than the boys.

It's a long way from here to 'Science proves why women talk more than men', but the reasoning seems to be something like this: FOXP2 causes male

1



#### 2 Introduction

rats to talk a lot  $\rightarrow$  *FOXP2* does the same thing in all humans  $\rightarrow$  *FOXP2* causes female humans to talk a lot. Obviously, this line of reasoning (which the authors didn't endorse in their paper) assumes that women *do* talk more than men – but the '13,000 words' mentioned in news reports have nothing to do with this study; the number is a zombie statistic, often repeated despite the fact that there is no evidence whatsoever to back it up.

This book is about two things, both neatly illustrated by this story. First, it is about popular beliefs about language: the conventional wisdom on topics from linguistic sex differences to the effects of text messaging. Sometimes, of course, popular opinion has things more or less right – but it's more interesting to examine cases where 'what everyone knows' is wrong, and so we will put a special focus on debunking language myths. Moreover, popular beliefs about language are often responsible for shoddy media coverage of the kind we have just seen. We wouldn't be nearly so interested in the genetics of baby mice if we didn't think it told us something about the battle of the sexes.

Second, this is a book about *how* to study language – not in the sense that it will train you to do linguistic analysis for yourself, but in the sense that it provides a glimpse of the kinds of things linguists do. Linguists now have a large toolkit of techniques for investigating how people use language, and many of them make at least a brief appearance in these pages: syntactic analysis in section 2.2.1, description of speech sounds in section 10.2.1, and ethnographic work in section 8.2.1, for example. But the primary focus of this book is on quantitative studies of behavior, either in the laboratory or in a more natural setting; we will devote a substantial amount of time to analyzing specific studies and understanding their strengths and weaknesses. The goal is for you to become an informed consumer of social science research with an appreciation of how the scientific process works.

Each chapter of this book addresses one language-related topic: sign language, bilingualism, language and thought, and so on. Chapters begin with a general overview of the area, describing popular beliefs about language and comparing those beliefs with what linguists actually know to be true. The last part of each chapter is a case study of a specific question such as 'Do women really talk more than men?' or 'Is it harder to learn a second language as you get older?' We examine in detail several published studies that address the question, evaluating how each study was conducted and what the results appear to mean: What do the results say about the question at hand? Does it seem likely that they would generalize to other situations?

Due to the nature of the material, Chapter 4 ('Chimpanzees can talk to us') and Chapter 6 ('Adults can't learn a new language') are structured somewhat differently. Chapter 8 ('Women talk more than men') has two case studies instead of one.



Introduction 3

What potential confounding factors weren't controlled? Along the way, we will get a glimpse into the process of conducting social science research, where careful experiments are extremely difficult to design but are nevertheless crucially important. One of the most important lessons to learn is that despite the definitive-sounding claims that often appear in popular science articles, no one experiment is ever the final word. To be really sure of something, we need converging evidence from a variety of sources.

Each chapter concludes with a section called 'For further reflection' with suggested exercises for stimulating further engagement with the topic. Many of these involve reading popular essays written by non-linguists; there is a great deal of material like this on the internet, but as far as possible I've included only works that have been published in journals (and are therefore accessible through most university libraries) or that are hosted by major media organizations (such as *The New York Times*) whose links are likely to stay current for a while.

The 'For further reading' section at the end of each chapter describes other resources that the interested reader can consult for more information. I've made an effort to emphasize non-technical sources that are appropriate for a general audience, but more challenging material (especially on narrower topics) is included as well. Accompanying notes sketch the content of these references and indicate the level at which they're written.

At a larger scale, this book is organized into three thematic sections. The first explores several types of language use that are widely considered to be something less than 'real' language: non-standard dialects, sign language, and the use of linguistic systems by non-human animals. The overarching question in these chapters is whether these systems appear to be full-fledged languages or not. The second section looks at the process of learning a language and at the consequences of knowing more than one language. The last section brings together four chapters that examine the relationship between how we use language and other aspects of daily life, such as our use of technology or the way we conceptualize the world. Despite these groupings, the chapters largely stand on their own and can be read in any order. (An exception is Chapter 2, which emphasizes the rule-governed nature of language and therefore lays important groundwork for everything that follows. It's also very useful to read Chapter 3, on signed languages, before reading about the ape language experiments in Chapter 4.)

Above all, my hope is that this book will encourage you to think of linguistics as an empirical science, one that requires systematic and technical study. The world is full of self-appointed experts who feel free to make pronouncements on language with little or no supporting evidence. Chapter 2 emphasizes the fact that every native speaker follows a set of complex rules in using his or her language – but the fact that you speak a language doesn't make you an



### 4 Introduction

expert on language, any more than the fact that you can walk makes you an expert on biomechanics. It's only through careful investigation that linguists have learned just how rich and fascinating language is; this book offers a small window into how linguists do this and what they have learned.

## **Further reading**

Pinker (1994) is an entertaining and well written overview of linguistics; it is also a sustained argument for the Chomskyan view that language is an innate human ability. Rickerson and Hilton (2006) is a collection of very brief essays on language and related topics, based on a popular NPR series. There are many books that provide a more technical introduction to the field at an undergraduate level; *Language Files* (Mihalicek and Wilson 2011) is an especially broad overview, with lots of problem sets that give students the chance to analyze linguistic data for themselves. Another classic textbook is Fromkin et al. (2013).

Bauer and Trudgill (1998) is a collection of short essays that address popular misconceptions, mostly related to social evaluations of language. Newbrook (2013) catalogues ideas about language that, using a deliberately non-evaluative term, he calls 'non-mainstream' – you or I might call them 'crackpot'. Although the book is dense and Newbrook's rebuttals of these ideas are necessarily brief, the text has plenty of references to more thorough criticisms of various fringe proposals.

## **Bibliography**

- Biological evidence may support idea that women talk more than men, study says. *Huffington Post*, February 21 2013. Available at http://www.huffingtonpost.com/2013/02/21/women-talk-more-than-men-study\_n\_2734215.html.
- Bauer, Laurie, and Peter Trudgill, editors. *Language Myths*. Penguin Books, London, 1998.
- Bowers, J. Michael, Miguel Perez-Pouchoulen, N. Shalon Edwards, and Margaret M. McCarthy. Foxp2 mediates sex differences in ultrasonic vocalization by rat pups and directs order of maternal retrieval. *The Journal of Neuroscience*, 33(8):3276–3283, 2013.
- Castillo, Michelle. Brain protein may explain why girls talk more than boys. *CBS News*, February 22 2013. Available at http://www.cbsnews.com/news/brain-protein-may -explain-why-girls-talk-more-than-boys/.
- Fromkin, Victoria, Robert Rodman, and Nina Hyams. *An Introduction to Language*. Cengage Learning, Boston, MA, 10th edition, 2013.
- Kim, Eun Kyung. Chatty Cathy, listen up: New study reveals why women talk more than men. Available at http://www.today.com/health/chatty-cathy-listen-new-study-reveals-why-women-talk-more-1C8469360, February 21 2013.



Bibliography 5

MacRae, Fiona. Sorry to interrupt, dear, but women really do talk more than men (13,000 words a day more to be precise). *Daily Mail Online*, February 20 2013. Available at http://www.dailymail.co.uk/sciencetech/article-2281891/Women-really-talk-men-13-000-words-day-precise.html.

- Mihalicek, Vedrana, and Christin Wilson, editors. *Language Files: Materials for an Introduction to Language and Linguistics*. The Ohio State University Press, Columbus, OH, 11th edition, 2011.
- Newbrook, Mark. Strange Linguistics: A Skeptical Linguist Looks at Non-Mainstream Ideas about Language. Lincom Europa, Munich, 2013.
- Pinker, Steven. *The Language Instinct: How the Mind Creates Language*. William Morrow and Company, New York, NY, 1994.
- Rickerson, E. M., and Barry Hilton, editors. *The 5 Minute Linguist: Bite-Sized Essays on Language and Languages*. Equinox Publishing, London, 2nd edition, 2006.





Part I

...But is it language?





# 2 'A dialect is a collection of mistakes'

No language is spoken exactly the same way by everyone who uses it. On one level, there are idiosyncratic differences among individuals. For example, there may be particular words that you tend to use a lot that your friends use less often; the specific shape of your mouth and throat affects the way your voice sounds; and so on.

On another level, different groups of people may use their language in systematically different ways. Speakers are typically aware of some of these differences, and we use the word *dialect* to refer to an identifiable variety of a language. You can probably name some of the dialects of your native language; in American English, for example, it is widely recognized that 'Southern English' (spoken in the southeastern part of the United States) is a distinctive variety, and so is the English spoken in New York City. Great Britain has many of its own varieties of English, and so do Australia and New Zealand. Parisian French is different from the variety spoken in Quebec; European Portuguese is different from Brazilian Portuguese; the Spanish of Argentina is different from the Spanish of Mexico; and on it goes.

It's common to describe dialects in terms of geography, but dialect differences can be associated with any number of social dimensions. In the United States, for example, one very salient variety is African American English (AAE). AAE is associated with differences based on race: it is spoken by many African-Americans (though not by all, and it is spoken by people of other racial backgrounds as well). Social class, age, and other factors all have an impact on the way we speak.

What's interesting is that speakers often have the feeling that various dialects are not merely different from each other; some are actually *better* than others. Southern American English is stigmatized as uneducated, lazy, and backwards; New York English is said to be rude and 'nasal'. Many English speakers believe that there are correct and incorrect ways to speak, and there is a particular variety – 'Standard English' – that gets things right by obeying grammatical rules.<sup>1</sup>

9

Of course, it's a simplification to talk about a single 'Standard English'. Most obviously, there are different standards in the United States, Great Britain and other English-speaking countries. Interestingly, many Americans feel that British English is better or more 'proper' even than Standard American English!



### 10 'A dialect is a collection of mistakes'

If this assessment is right, then Standard English is the true embodiment of the language, and non-standard dialects are something less than language. If Standard English follows 'the rules' (whatever those are) and other varieties do nothing more than break those rules, then Southern English and AAE are just collections of mistakes. And if they're just a collection of mistakes, then these non-standard dialects have no place in schools or other official domains.

In this chapter, we will examine the belief that non-standard dialects don't obey grammatical rules. We will focus particularly on AAE – as discussed in the next section, AAE is commonly accused of having no grammar. We will see that *all* varieties of a language, whether standard or not, do in fact obey grammatical rules; non-standard varieties are just obeying rules that happen to be different from the rules of the standard. Our case study at the end of the chapter focuses on the issue of education: what is the best way to teach the standard dialect of a language to students who speak a non-standard dialect? This question was addressed by the Oakland Board of Education in 1996, and their resolution on the issue became a topic of national debate in the United States.

### 2.1 AAE as a rule-breaker

AAE is one of the most well-known non-standard dialects in the United States. It is also known as *Black English* or *Ebonics*; the latter term became famous during the Oakland Board of Education debate in 1996. The word *Ebonics* was actually coined by a linguist as a word to refer to a whole family of language varieties and practices associated with enslaved Africans. The term has never been widely adopted by linguists, and today it is mostly used as a synonym for AAE (often with negative undertones). Linguists usually use the term *AAE* (or *AAVE*, for *African American Vernacular English*).

AAE is highly stigmatized, and many people believe that it does nothing more than disobey the rules of Standard English. Raspberry (1996) refers to it as 'a language that has no right or wrong expressions, no consistent spellings or pronunciations and no discernable rules'. Mitchell (1979, 164) suggests that there may even be something deliberately subversive about the dialect: 'its blithe disregard of standard grammatical forms is as crafty as it is cocky'. And it isn't hard to find even harsher assessments – for example, in the definitions of 'Ebonics' submitted to Urban Dictionary:

It...has almost no defined syntactical structure. Also of note is the almost complete lack of conjugation of verbs ("I be", "she be", "thems be", etc)....

When in doubt...just string random thoughts together and insinuate that they actually mean something.