

语音学与音系学经典丛书



# 音系学引论

Francis Katamba 著

## An Introduction to Phonology

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## 出版说明

语言学研究是外教社学术出版的重要领域之一。一直以来，外教社坚持原创与引进并举，经典与前沿并重，先后推出了一系列广受赞誉的语言学著作，对我国语言学的教学和科研发挥了巨大的推动作用。

近年来，语音研究呈现出强劲的发展势头，学派众多，理论新颖，成果丰硕。国内越来越多的高校开始认识到语音学与音系学教学与科研的重要性，并陆续开设了相关课程。

为此，外教社根据国际上语音研究的最新成果，结合国内高校对语音学与音系学用书的迫切需要，从西方已出版的众多著作中遴选出一批有代表性的经典书目，推出“语音学与音系学经典丛书”。本系列涵盖了语音学和音系学的核心内容，既有涉及语音学与音系学入门知识的基础教材，又包含了这一领域研究者必读的经典之作，系统介绍了西方语音学与音系学的研究现状与发展趋势，在一定程度上弥补了国内这一方面学术资源的匮乏，便于读者由浅入深，循序渐进，为学习和研究打下坚实基础。

希望这套丛书的推出能满足国内语音学和音系学领域读者的实际需求，进一步推动我国语言学研究的开发与繁荣。

# 前 言

语音不仅是语言三个基本要素之一，而且还是第一基本要素。汉语的语音研究由来已久，但长久以来，在我国它却一直作为一种以认读字音、作诗吟曲等为目的的辅助性学问。进入20世纪，西方语音学理论与方法传入我国后，才真正改变了中国传统语音研究的理念与方法。一百多年来，经过我国几代学者们的不懈努力与奋斗，我们逐渐形成了现代汉语的语音学理论与方法，并发表了一系列具有重要历史影响的学术论文与论著。

但与此同时，也不得不承认：我们的语音学研究与英美等西方国家相比还存在较大差距。特别是20世纪初以来，西方语音学研究在诸多方面都发生了根本性变化，尤其体现在以下两大方面：

首先是在学科领域的划分上。因研究目的与方法的不同而形成了两个不同的重要语音研究领域：语音学与音系学。20世纪初，音系学从语音学研究领域中脱离出来，逐渐形成了一门独立的学科。一百多年以来，音系学先后经历了两个大的发展阶段：第一阶段是介绍和发现音位概念、探索语音之间关系为主的结构主义音系学（亦称“音位学”）；第二阶段是以SPE为基础理论框架的生成音系学，特别是在后一阶段中呈现出学派众多、理论新颖、观点各异、精彩纷呈的景象。

其次是在语音研究的工具与手段上。随着计算机信息技术的突飞猛进，语音分析工具不断推陈出新，这为语音学的迅猛发展提供了坚实可靠的研究基础。在众多不同学科背景的学者通力协作下，语音合成、语音识别的自然度与技术水平有了极大的提高，各种实用语音软件得到普及，并很快进入到人们的日常生活之中，正在实现语言学家多年来一直追求的语言研究产业化的目标与理想。

要跟上语音研究领域的强劲发展势头，我们就必须及时全面系统地了解西方语音学与音系学的研究现状与发展趋势。为此，外教社从西方已出版的众多语音学与音系学著作中精心选取并推出了一批有代表性的经典著作。应该说，成规模地推出一批有代表性的当代语音学与音系学著作专集，在国内还是第一次，这无疑是一件非常有意义的事情，值得庆贺。近年来，越来越多的人开始认识到语言学学科的重要性。现在，开设语言学课程的高校不少，选择语言学专业或方向的学生也很多，但我们知道，能开设并系统讲授语音学尤其是音系学课程的学校却不多。众所周知，这方

面的课程在英美国家语言学专业都是必修课程。试想，如果我们的高校连语音学和音系学入门课程都不能开设，那么何以称得上是语言学专业？当然，造成这一局面的原因是多方面的，但缺少好的语音学和音系学方面的教材与著作，是其中的一个重要因素。外教社推出的“语音学与音系学经典丛书”，既关注语音研究领域中的代表性重要成果，也考虑到国内众多语言学专业或方向的学生学习语音学与音系学的实际状况和迫切需要。希望这套丛书的出版在一定程度上能够弥补国内这方面的缺陷，满足国内学者和学生的实际需求。

此外，需要指出的是，语音学与音系学是两个既相关又有所不同的学科领域。国内汉语学界对此并不做区分，所用的“语音学”是它的广义概念，既包括语音学，也包括音系学。但西方语言学界对此是做区分的，他们通常所使用的是狭义的语音学，即指对语音的一种跨学科研究，一般是不包括音系学（语音的语言学研究）的。近年来，由于多学科的积极参与和努力，现代语音学研究已日趋科学化，其研究方法更像是一门理工科的学问。这对于文科背景的语言学专业学生来说，确实是一种挑战，但也并非想象的那么难。事实上，只要具备一定的（高中）理科知识，学习起来也是不成问题的。“音系学”这个概念比较新，它源自英语的phonology，20世纪80年代中期之后，这个译名才逐渐被接受。音系学不同于语音学，它是非物质或非物理的，是人类语言所具有的能产性属性赖以存在的基础，是有关储存于人脑中的语音知识的学问。很显然，音系学非常抽象，要想理解和掌握音系学的理论原则与分析方法，就需要具有比较严谨的逻辑推理和分析能力。由于音系学研究的目的在于发现和揭示表层语音知识背后的不同语言普遍具有的潜在力量或规律，因而音系学教材不可避免地会涉及很多我们甚至从未听说过的语言的语料。这些语料看似复杂，其实不然，它们一定都遵循某种潜在的规律。这也正是音系学研究的意义所在。综上所述，语音学更关注实际的语音体现形式，而音系学则更关注潜在的语音结构与规律。这套丛书将两者结合起来，意在加强和促进国内在这两个研究领域的通力协作，以推动中国当代语音学与音系学理论的发展以及两者在汉语中的应用。

希望这套丛书能成为广大读者的良师益友。



复旦大学外文学院  
2017年3月

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# An Introduction to Phonology

Francis Katamba



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## Preface

This book is a hands-on introduction to PHONOLOGY for the absolute novice. Probably the best way to learn about phonology, i.e. to learn how speech sounds are used to convey meaning, is to *do* phonological analysis and confront theoretical issues as they get thrown up by the data.

With this in mind, this book has been written not only with exercises at the end of each chapter, but also with in-text problems and tasks which are separated from the discussion by a line drawn across the page. You should always attempt these problems before reading on. They are an integral part of the discussion. Suggested answers are included within each chapter. Answers to end of chapter exercises will be found at the end of the book.

Some remarks on presentation: technical terms are commented on and highlighted using capital letters when they are introduced for the first time or when it is important to emphasise them. The common convention of using an asterisk to indicate impossible or wrong forms is also observed (e.g. \**tleg* is 'starred' to show that it is not a possible word in English). Examples discussed in the text are written in italics.

The model of phonology which I introduce you to is called GENERATIVE PHONOLOGY. It was given its first full and authoritative statement in Chomsky and Halle's 1968 book *The Sound Pattern of English*. As we shall see, since then it has moved on in various directions. In the next few paragraphs the objectives of this theory are explained.

Generative phonology is part of the theory of language called GENERATIVE GRAMMAR which has been devel-

oped by Chomsky and his collaborators. The basic goal of generative grammar is to explore and understand the nature of linguistic knowledge. It seeks answers to questions like: what does knowing a language entail? How is linguistic knowledge acquired by infants? Are there any properties of language that are universal, i.e. is there such a thing as 'Universal Grammar'?

Chomsky believes that the answer to the last question, which he thinks holds the key to the other questions, is 'yes' and goes on to argue that Universal Grammar has a biological basis. Biologically determined characteristics of the brain pre-dispose humans to acquire grammars with certain properties. But this raises further questions: what are the properties of Universal Grammar? In attempting to answer this question, generative linguists have developed principles and posited rules of the kind we shall explore. They form part of their model of Universal Grammar.

Like other linguists, generative linguists know that some aspects of language are not universal. But still they raise the question whether some non-universal properties of language fall into certain well defined parameters. Are there any pre-set limits within which differences between languages occur? If the answer is 'yes' what are these limits and why do they exist? These are some of the main issues which this book addresses.

Besides being concerned with general patterns of language structure, linguistic theory must provide us with the tools for describing those idiosyncratic properties which are peculiar to a particular language. For instance, linguistic theory should enable us to write a grammar for English showing that the final *f* consonant of *chief* is pronounced *f* when the plural *-s* ending is present but the final *f* of *thief* is pronounced *v* when the same plural ending is present.

The grammar of a language can be regarded as a model of the COMPETENCE (i.e. inexplicit knowledge of rules) that underlies a native speaker's overt linguistic PERFORMANCE as a speaker-hearer. We need to distinguish between the knowledge speakers have and the manner in which they put that knowledge to use in concrete situations as, sometimes, there is a difference between what one knows to be correct and what one actually says. This may be due to a number of factors such as slips of the

tongue or memory lapses. Linguistics is primarily concerned with linguistic competence (knowledge) rather than performance (use). This book is primarily concerned with PHONOLOGICAL COMPETENCE.

Interestingly, knowing a language, say English, is not merely a matter of learning by rote a very large number of sentences. Native speakers of a language can always produce and understand completely new sentences which they have not previously encountered. No list, however long, could contain all the potential sentences of a language. Therefore a grammar of a language cannot be simply a list of words and sentences of that language. In view of this, Chomsky proposes that a grammar of a language should be a generative algebraic system of formal, explicit rules that enumerates a non-finite number of well-formed sentences and assigns to each one of them a correct analysis of its structure.

The motivation for using rules to account for the fact that there is no limit to the number of possible sentences that a language can contain is obvious: speakers produce and understand sentences using rules. They do not merely memorise long lists of sentences. However, the reasons for assuming that there are rules which underlie speakers' knowledge of the sound system of their language are perhaps less obvious, given the fact that a language only uses a finite set of sounds to form words.

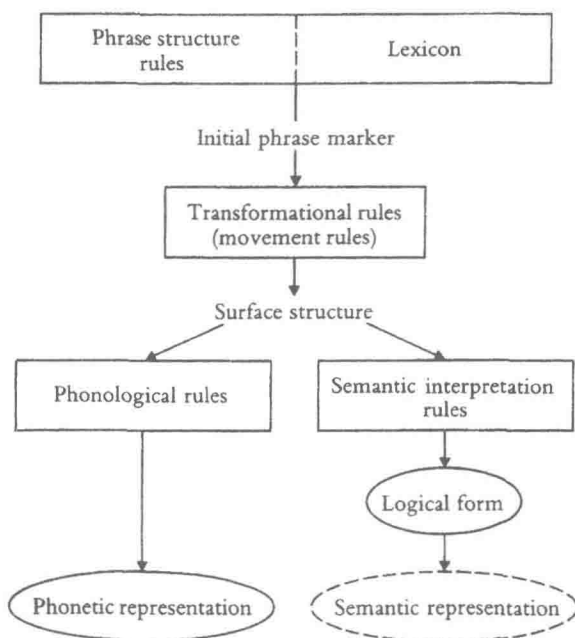
Just a little reflection is enough to show that the sound system is also rule governed. Determine which of the following nonsense words (which you are probably seeing for the first time) is a possible English word: *tpat*, *lsender*, *bintlement* and *zvetsin*. You no doubt have chosen *bintlement* as the only potential English word. This is because you **know** that the consonant sequences *tp*, *ls* and *zv* which occur in the other 'words' are not permitted at the beginning of an English word. On the other hand, all the sequences of sounds in *bintlement* are allowed by the rules of English phonology. You might indeed be tempted to look up *bintlement* in a good English dictionary – but not the other nonsense words.

The implicit knowledge of linguistic rules that speakers have is probably modular. Generative linguists have proposed that it can be represented using a model with a

number of components which represent semantic knowledge, syntactic knowledge, knowledge of sound structure, and so on.

Over the years, various proposals have been made regarding the precise organisation and content of a generative grammar. You are not expected to have any prior knowledge of these theories. Nothing is presupposed. Essential aspects of the theory will be introduced, where necessary.

The diagram below shows the place of phonology in the general theory of language which we shall be using:



A Generative Grammar Model of Language (Based on Lightfoot 1982)

The SYNTACTIC COMPONENT consists of the base sub-component and the transformational rules. The PHRASE STRUCTURE (PS) rules and the LEXICON found in the base sub-component of the grammar generate the INITIAL PHRASE MARKER (DEEP STRUCTURE) of a sentence. The lexicon lists the words of the language, together with their syntactic and phonological properties

and the PS rules define the constituent structure (i.e. the structure of noun phrases, verb phrases etc.) and how they interact with each other. The initial phrase marker enters the transformational component where it may be modified by various transformational rules which move around constituents. This is done to relate sentences like *Money is what I need* and *What I need is money*. The output of the syntactic component is the SURFACE STRUCTURE.

Surface structures are the input to rules of LOGICAL FORM and SEMANTIC INTERPRETATION. The rules of logical form explain, for example, why *to pay* in the sentence *Jane ordered Bill to pay* is understood to mean that *Bill* is the one that was expected to pay while in *Jane promised Bill to pay* it is *Jane* who is expected to pay.

Rules of semantic interpretation are used, for instance to account for logical relations like entailment. A sentence like '*The Mayor of Lancaster switched on the Christmas lights last year*' entails that **there were Christmas lights last year**. It would be contradictory to utter that sentence and continue '*but there were no Christmas lights last year because of budget cuts*'.

PHONOLOGICAL RULES also apply to the surface structure and assign it a PHONETIC REPRESENTATION (i.e. show how it is pronounced). It is this final aspect of the grammar that we are mainly concerned with in this book.

This book is a simple, practical introduction to phonology within the model of generative phonology as it has evolved during the last twenty years or so. While in the early years the emphasis was on making explicit the relationship between underlying and surface phonological representations by investigating the nature of formal phonological rules, the ways in which rules interact and the distance between underlying and surface representations in phonology, lately the focus has shifted to scrutinising the nature of phonological representations themselves and the relationship between phonology and other components of the grammar.

This shift in focus is reflected in the contents of this book. After a brief introduction to articulatory phonetics, the opening chapters deal with distinctiveness, 'naturalness', the relationship between levels of phonological represen-

tation and rule interaction. These were the main issues explored in the 1960s and 1970s.

However, the latter part of the book is devoted to topics of current interest. One major trend in generative phonology today involves several 'non-linear' approaches to the nature of phonological representations. It is being developed through an examination of the nature of sound 'segments', syllable, tone, stress, and intonation in numerous languages. The other major current trend focuses on the relationship between phonology and other components of the grammar such as the lexicon, morphology and syntax. These two trends are complementary.

The exclusive concentration on generative phonology should not be taken as evidence of a belief on my part that nothing of value has been said about phonology in the other frameworks. Occasionally the contributions of other schools are mentioned in a footnote. But I have restricted the exposition to generative phonology for two reasons. In my experience, for the beginning student it is more bewildering than enlightening to be presented with several competing theoretical positions, with their different theoretical concepts, analytical techniques and nomenclature. There is virtue in introducing students initially to one coherent theoretical approach. The question that then arises is: which approach?

I have chosen to introduce you to generative phonology. This is not merely a matter of my personal taste. Generative phonology is currently the dominant model of phonology. It is the model to come to grips with, if eventually you wish to read the current descriptive and theoretical phonological literature. Much of it is written in some version of this framework.

However, should you wish to survey other past and present trends in phonology there are many books which you can turn to. If you wish to acquaint yourself with the history of phonology you can read excellent historical studies like Fischer-Jørgensen (1975) and the more recent Anderson (1985). If you want an eclectic, 'unbiased' introduction to phonological concepts and their philosophical underpinnings you can turn to Lass (1984).

This book has developed from phonology courses that

I have taught over the years at the University of Nairobi, Kenya and at the University of Lancaster. I am grateful to the generations of students who were subjected to earlier drafts of the book for the feedback I got from them.

In writing this book I have benefited immensely from the help of Professor Geoffrey Sampson. Very special thanks also go to my editors and colleagues Mr. Mick Short and Professor Geoffrey Leech whose critical comments and suggestions have made this a better book than it would otherwise have been. Those others who over the years have taught me directly or indirectly something about phonology deserve a special mention. Their scholarship is reflected in the theory presented here as well as in the data from the dozens of languages cited. And finally, I am grateful for the encouragement of my wife Janet during the long gestation of this book.

*21 March 1988*

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