Introduction

Tom Simpson, Peter Carruthers, Stephen Laurence, and Stephen Stich

in The Innate Mind: Structure and Contents

This introductory chapter reviews some of the debates in philosophy, psychology, anthropology, evolutionary theory, and other cognitive sciences that provide a background for the topics with which this volume is concerned. Topics covered include the history of nativism, the poverty of the stimulus argument, the uniform and structure pattern followed by human cognitive development, evolution biology, and cognitive modularity. An overview of the subsequent chapters is presented.

Innateness and Moral Psychology *

Shaun Nichols

This chapter argues that the recent attempts to use Chomsky-style arguments in support of innate moral knowledge are uniformly unconvincing. The chapter proceeds as follows: Section 1 sets out the basic form of the central argument in the Chomskian arsenal — the poverty of the stimulus (POS) argument, as well as the conclusions about domain specificity and innate propositional knowledge that are supposed to follow. Section 2 distinguishes three hypotheses about innateness and morality: rule nativism, moral principle nativism, and moral judgment nativism. Sections 3–5 consider each of these hypotheses. It is argued that while there is some reason to favour rule nativism, the arguments that moral principles and moral judgment derive from innate moral knowledge don't work. The capacity for moral judgment is better
explained by appeal to innate affective systems rather than innate moral knowledge. In the final section, it is argued that the role of such affective mechanisms in structuring the mind complicates the standard picture about poverty of the stimulus arguments and nativism. For the affective mechanisms that influence cognitive structures can make contributions that are neither domain general nor domain specific.

How argument structure constructions are learned 1
Adele Goldberg

in Constructions at Work: The Nature of Generalization in Language

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Advances to our understanding of statistical learning mechanisms were not envisioned in the 1960s when the notion that critical aspects of grammar were unlearnable became dogma in the field of linguistics. This chapter joins the growing body of literature that detracts from the poverty of the stimulus argument by presenting evidence that the language input children receive provides more than adequate means by which learners can induce the association of meaning with certain argument structure patterns. Well-established categorization principles apply straightforwardly to this domain. This chapter outlines the first experimental studies to investigate novel construction learning. Results demonstrate that skewed input such that a single verb in a novel construction accounts for the preponderance of tokens, facilitates learners getting a ‘fix’ on the construction's meaning. One verb accounts for the lion's share of tokens of each argument frame considered in an extensive corpus study. In this way, grammatical constructions may arise developmentally as generalizations over lexical items in particular patterns.

Connectionism and Three Levels of Nativism
William Ramsey and Stephen Stich


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This chapter explores the relation between connectionism and Chomsky's arguments for the existence of innate knowledge. Along the way, it
proposes to defend a pair of interrelated conclusions. The first is that there are actually three versions of Chomsky's poverty of the stimulus argument, which make increasingly strong claims about the nature of the cognitive endowments required for learning language. The second conclusion is that the relation between connectionism and nativism is considerably more complex than many have assumed. The chapter is organized as follows. Section 2 sets out the three versions of Chomsky's poverty of the stimulus argument. Section 3 offers an introductory overview of recent connectionist research and a survey of ongoing efforts to get connectionist devices to learn aspects of natural language. Section 4 explores the ways in which the success of these efforts would bear upon the three versions of Chomsky's argument.

The Unity of Consciousness and the Consciousness of Unity
Thomas G. Bever

in On Concepts, Modules, and Language: Cognitive Science at Its Core
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Every language-learning child eventually automatically segments the organization of word sequences into natural units. Within the natural units, processing of normal conversation reveals a disconnect between listener’s representation of the sound and meaning of utterances. A compressed or absent word at a point early in a sequence is unintelligible until later acoustic information, yet listeners think they perceived the earlier sounds and their interpretation as they were heard. This discovery has several implications: Our conscious unified experience of language as we hear and simultaneously interpret it is partly reconstructed in time-suspended “psychological moments”; the “poverty of the stimulus language learning problem” is far graver than usually supposed; the serial domain where such integration occurs may be the “phase,” which unifies the serial percept with structural assignment and meanings; every level of language processing overlaps with others in a “computational fractal”; each level analysis-by-synthesis interaction of associative-serial and structure dependent processes.
This chapter presents one of Carol Chomsky's classic papers, which encompasses the title of the present volume — the idea that children develop rich grammars from poor inputs. The paper reports a careful longitudinal analysis of language growth in cases that constitute extreme examples of the Poverty of the Stimulus: children that are both deaf and blind from a very early age. Notwithstanding such severe deprivation, language growth unfolds in essentially a normal way, matching the levels of production and understanding of normal children of the same age.

This book addresses one of the most famous and controversial arguments in the study of language and mind, the Poverty of the Stimulus (POS). Presented by Chomsky in 1968, the argument holds that children do not receive enough evidence to infer the existence of core aspects of language, such as the dependence of linguistic rules on hierarchical phrase structure. The argument strikes against empiricist accounts of language acquisition and supports the conclusion that knowledge of some aspects of grammar must be innate. In the first part of this book, chapters consider the general issues around the POS argument, review the empirical data, and offer new and plausible explanations. This is followed by a discussion of the processes of language acquisition, and observed ‘gaps’ between adult and child grammar, concentrating on the late spontaneous acquisition by children of some key syntactic principles, basically, though not exclusively, between the ages of 5 to 9. Part 3 widens the horizon beyond language acquisition in the narrow sense, examining the natural development of reading and writing and of the child's growing sensitivity for the fine arts.
Drawing upon the work of Carol Chomsky, this chapter focuses on two specific issues. The first concerns the robustness of language acquisition to variability in learners' access to input that appear crucial to the function being acquired, as seen from language studies in people who became both deaf and blind during infancy. The second concerns the abilities of children to reconstruct the meanings of sentences with covert structure, as in Carol Chomsky's landmark studies of whether blindfolded dolls might be hard to see. These two themes exemplify the general problem known as ‘the poverty of the stimulus’; in the present case, how humans reconstruct linguistic form and meaning from the blatantly inadequate information offered in their usable environment.

This chapter has three objectives. First, it critiques moral nativism, especially the version that is modelled on Chomsky’s linguistic nativism, showing that moral nativists massively understate the richness of children’s moral experience, and showing that they have no credible account of the relationship between reflective and reactive morality. Second, it develops a positive account of moral cognition and moral learning, in some ways similar to the new wave sentimentalist accounts of Prinz and Nichols. The account recognises the importance of prosocial emotions and our biological preparation for norm learning, but it also recognises the active role of children as they probe their normative environment, and the very rich and highly organised social input children experience. Third, it uses the example of norm learning (not just moral norms) to show how the basic apprentice learning model can be extended from skill learning to more declarative and explicit, less procedural and implicit, cognitive capacities.