over-active government. "The state" is reified in Fisher's account, and he misses the significance of foundations as intermediary institutions that were free to act as they did precisely because they were not the handmaiden of government. The verdict on the book must be that it contains much fascinating original documentary material, but the overall interpretation remains unconvincing.

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Learning to Speak

The Child's Path to Spoken Language. JOHN L. LOCKE. Harvard University Press, Cambridge, MA, 1993. xii, 518 pp., illus. $39.95 or £27.95.

Children master the basics of the phonetic system, grammar, vocabulary, and conversational principles of their native tongue in the span of a few short years, a feat not lost on any linguist who has devoted a lifetime to explicitly describing the rules in any one of these domains for even one language. Moreover, they do so at a relatively predictable pace, following fairly regular patterns of acquisition, regardless of the language to be learned or the cultural milieu in which they are raised. How is such a prodigious accomplishment possible?

Perhaps the most contentious area of disagreement among developmental psycholinguists is the degree to which the capacity for language is inherent, species-specific, and reliant for its development only upon exposure to adult language models, and the degree to which it arises only through the interaction of children with the significant adults in their environment. The former account of language acquisition is usually termed "nativist," and the latter is often described as "social-interactionist."

In this new contribution to the developmental psycholinguistic literature Locke seeks to challenge many of the assumptions implicit in both nativist and interactionist accounts of language development. Reviewing research from a wide array of disciplines, he makes a number of proposals that have the potential to substantially alter the way language acquisition is studied and explained.

Perhaps Locke's most important contribution is his suggestion that acquisition researchers have treated language too narrowly, that, in concentrating on language's complex structural properties and in particular on the acquisition of grammar, they have given insufficient attention to its essentially communicative nature. Further, in real life spoken communication involves the transmittal of both linguistic and paralinguistic information. Appreciating an utterance fully requires not only a knowledge of its structural properties but also the ability to abstract from the stream of speech information about the speaker's gender, emotional state, and focus.

Locke notes that the processing of such paralinguistic information is known to be different from that of linguistic information, tending to be localized to the right cerebral hemisphere rather than the left. He believes that the relatively early development of the right hemisphere enables the infant to process the paralinguistic content of adult speech addressed to him, which in turn fosters the child's inherent (and strongly reinforced) desire for attachment and social interaction. Locke details the case for a quasi-modular "specialization in social cognition" (SSC) that ontogenetically (and phylogenetically) predates and enables the activities of a "Grammatical Analysis Module" (GAM). The SSC leads the child to perform certain nonlinguistic analyses of verbal and nonverbal interactions, while the GAM as posited resembles other nativist proposals for a species-specific language module (such as Chomsky's Language Acquisition Device), the primary function of which is the mastery of grammar.

On the basis of data from the observation of children learning spoken English and signed languages, Locke proposes that the GAM does not operate conspicuously until the age of about 24 to 28 months, at which point evidence of grammatical learning emerges through children's overregularization of morphological affixes (for example, the use of the never-overheard term "goed" for "went," despite the use at a younger age of the apparently unanalyzed form "went"). Prior to the GAM's onset of activity, the child may seem linguistic, and is indisputably communicative, but has no control over the arbitrary, rule-governed subsystems of language such as morphology, syntax, and phonology.

Locke's evidence for this dual route to spoken language is garnered from a number of sources and disciplines. Among the more interesting data presented are the results of conditions that appear to disable the SSC (such as autism), with ensuing disruption of the linguistic systems hypothetically subserved by the GAM.

Locke has a particular talent for disarming nativists and social interactionists of some of the basic artillery used in their skirmishing. Nativists often defend their account of language learning by identifying infant "linguistic knowledge" that is unlikely to be the result of experience. A growing body of research documenting the perceptual capabilities of extremely young infants has been used to posit innate predispositions for the analysis of linguistic input. For example, soon after birth infants are capable of discriminating between finely contrasting sounds within and across human languages, male and female voices, and varying prosodic patterns. However, Locke points out that recent findings regarding prenatal hearing make it difficult to describe any behavior demonstrated at or soon after birth as nonenvironmentally influenced. In an extended discussion that further undermines the distinction between biology and experience, Locke details the effects of various sources of perceptual stimulation on neurological development. He notes that infants aggressively solicit various kinds of perceptual stimulation, which has documented consequences for cortical organization and functioning. Similarly, he questions the assumption that the ways in which parents interact, verbally and nonverbally, with their infants are determined strictly by environmental factors, finally concluding,

> The classic opposition—genes versus the environment—now appears to be rather shopworn and empty. In reality, there never was a *versus* in this artificial dichotomy and there never were just two factors in the equation. Instead, we see that early brain developments beget others, that the child is an active agent in the creation of its brain and neurolinguistic capacity, that environments are themselves the expression of genes which are also inherited by the infant, . . . that behavior influences function and function influences structure, and that experience produces lasting changes in the architecture and function of the brain.

In *The Child's Path to Spoken Language* Locke reminds us that language learning occurs in the very real context of physical and social maturation and that children are neither little linguists nor experimental subjects in the laboratory. Researchers approaching the problem of language acquisition from different perspectives should welcome his contribution. Though he argues with many of the tenets defended by nativists and social interactionists in their debates about the relative merits of their theories, he dismisses none of their findings, striving instead for their noncompetitive inclusion in a full account of infant language learning.

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