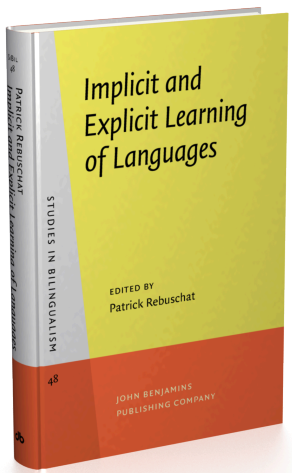
Foreword

https://doi.org/10.1075/sibil.48.001for



Pages vii–viii of
Implicit and Explicit Learning of Languages
Edited by Patrick Rebuschat
[**Studies in Bilingualism**, 48] 2015. xxii, 489 pp.

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Foreword

As the coiner of the term "implicit learning" in the early 1960's,[1] I've enjoyed seeing how the study of unconscious cognitive processes has developed. While the focus of this collection of insightful chapters is on implicit learning of languages, even the quickest scan of the contributions reveals explorations into many other interconnected issues. From the very beginning I've felt that everything interesting that humans do is a dynamic interplay of implicit and explicit operations – a position now seen as a truism.

That first study was done using my favorite heuristic: Do simple experiments that make points with large implications. I hoped I was creating a mini-environment that could function as a platform to examine natural language learning. It was consciously crafted as a counterbalance to the Chomskyan Nativism which I felt, even then, was deeply flawed.

But honestly, I didn't anticipate where a half-century of research would go. The many extensions and elaborations that have emerged include research in fields as diverse as computer science and robotics, linguistics, education, evolutionary biology, philosophy of mind, aesthetics and, recently, security systems (acting appropriately in an implicit SRT task as a "password" into a secure digital domain).

Where is the field headed? What issues are pressing, inviting? My thoughts:

a. I'm hoping to see a renewed interest in evolutionary biology. Chomsky's theory seemed so wrongheaded precisely because it made assumptions that were incoherent from a Darwinian perspective. Rather than reject this ill-conceived nativism many chose instead to ignore evolutionary biology. I think it would be wise to re-engage our interest.
b. I'm anticipating a continued expansion of interest in *communication*. Children don't learn language; they learn to communicate. It's a social learning process and involves complex gestural systems, intonation regularities, patterns of emphasis, pausing and facial expression all of which take place in multi-person domains.
c. The issue of awareness continues to confound. There is epistemic awareness and functional awareness. In many implicit learning settings epistemic awareness is low or nonexistent but functional awareness may be quite high. We are quite

1. It was the title of my MA Thesis (1965), Brown University. It was my euphemism of choice for *unconscious* – I wanted to avoid any perceived links with psychoanalysis and other "depth" psychologies.

DOI 10.1075/sibil.48.001for
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confident that a sentence is nongrammatical without being aware of the grammatical rule violated. This issue connects to (a) above. There are obvious evolutionary advantages to knowing *that* we know independent of knowing *what* we know.

d. The phrase "implicit statistical learning" is gaining ground. I applaud this move. Viewing implicit learning in this manner invites the use of computational models which are becoming ever more powerful. Despite my early use of terms like "rule" (which caused no end of problems for me over the decades) I've always viewed the underlying core operation as the detection of patterns of covariation between elements in complex stimulus domains. These covariations can be simple and direct (e.g., classical conditioning) or physically and temporally remote (e.g., language learning). They can also be embedded in other displays (e.g., multiple-task settings which are the norm in social interactions). And, importantly, they can appear as co-occurring elements that are not genuine covariations. Models based on statistical parameters do, to date, the best job of capturing these features.

e. Finally, I look forward to more applications of implicit learning procedures in real world settings. The ones focused on in this collection are linguistic, specifically L2 acquisition. Other areas where promising applications have emerged are motor learning, sports psychology, rehabilitation medicine, geriatrics, organizational psychology, social science of knowledge, education, robotics and control systems, study of aesthetics and the schooling of the developmentally disabled.

In short, it's been a fun half-century. I'm pleased that I could play a small role in it and thank Patrick Rebuschat for the opportunity to write this preface.

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