TRENDS IN
LANGUAGE ACQUISITION RESEARCH 22

Sources of Variation in First Language Acquisition Languages, contexts, and learners

Edited by Maya Hickmann, Edy Veneziano and Harriet Jisa

JOHN BENJAMINS PUBLISHING COMPANY

Developmental research has long focused on regularities in language acquisition, minimizing factors that might be responsible for variation. Although researchers are now increasingly concerned with one or another of these factors, this volume brings together research on three different sources of variation: language-specific properties, the nature of the input to children across contexts, and several aspects of the learners themselves. Chapters explore these sources of variation within an interdisciplinary and comparative approach allying theories and methodologies stemming from linguistics, psycholinguistics, developmental psychology, and neuroscience. The comparative perspective involves different languages, contexts of use, types of learners (first/second language acquisition, monolingual/ bilingual learners, autism, language impairment), as well as vocal and visuo-gestural communicative modalities (co-verbal gestures, sign language acquisition). The volume points to the need to enhance interdisciplinary research using complementary methodologies to further examine sources of variation and to integrate variation into a more general developmental theory.

"This collection presents a broad new look at the importance of variation in language acquisition."

Ann Peters, University of Hawai'i

"This book is timely. "Celebrate diversity" is a motto of our era, and the authors assembled here examine many ways in which language learners and language environments are diverse. The study of variation can reveal the range of possible developmental paths and the factors that influence

those paths, leading to more refined models of language learning. This rich volume provides masses of much-needed data of many sorts."

Dan I. Slobin, University of California, Berkeley



do

Sources of Variation in First Language Acquisition

Languages, contexts, and learners

Edited by

Maya Hickmann CNRS & Université Paris 8

Edy Veneziano

Université Paris Descartes & CNRS

Harriet Jisa

Université Lumière Lyon 2 & CNRS

John Benjamins Publishing Company Amsterdam/Philadelphia



The paper used in this publication meets the minimum requirements of the American National Standard for Information Sciences – Permanence of Paper for Printed Library Materials, ANSI z39.48-1984.

DOI 10.1075/tilar.22

Cataloging-in-Publication Data available from Library of Congress: LCCN 2017020007 (PRINT) / 2017039738 (E-BOOK)

ISBN 978 90 272 4412 3 (HB) ISBN 978 90 272 6532 6 (E-BOOK)

© 2018 - John Benjamins B.V.

No part of this book may be reproduced in any form, by print, photoprint, microfilm, or any other means, without written permission from the publisher.

John Benjamins Publishing Company · https://benjamins.com

Sources of Variation in First Language Acquisition

Trends in Language Acquisition Research

ISSN 1569-0644

TiLAR publishes monographs, edited volumes and text books on theoretical and methodological issues in the field of child language research. The focus of the series is on original research on all aspects of the scientific study of language behavior in children, linking different areas of research including linguistics, psychology & cognitive science.

For an overview of all books published in this series, please see http://benjamins.com/catalog/tilar

Series Editors

Shanley E.M. Allen University of Kaiserslautern allen@sowi.uni-kl.de Caroline F. Rowland

University of Liverpool and Max Planck Institute for Psycholinguistics

crowland@liverpool.ac.uk

Editorial Board

Ruth A. Berman Tel Aviv University Morten H. Christiansen

Cornell University Jean Berko Gleason Boston University

Nancy Budwig Clark University Ewa Dabrowska

Northumbria University

Philip S. Dale

University of New Mexico

Paul Fletcher

University College Cork

Steven Gillis

University of Antwerp Annick De Houwer University of Erfurt

Elena Lieven

University of Manchester Brian MacWhinney Carnegie Mellon University

Marilyn Vihman University of York

Volume 22

Sources of Variation in First Language Acquisition Languages, contexts, and learners Edited by Maya Hickmann, Edy Veneziano and Harriet Jisa

List of contributors

Pascal AMSILI amsili@linguist.univ-paris-diderot.fr Laboratoire de Linguistique Formelle, Université Paris Diderot & CNRS

Mark APPELBAUM mappelbaum@ucsd.edu Department of Psychology, University of California, San Diego

Dominique BASSANO Dominique.bassano@cnrs.fr Laboratoire Structures Formelles du Langage, CNRS & Université Paris 8

Pauline BEAUPOIL-HOURDEL pauline.beaupoil@gmail.com Langues, Textes, Arts et Cultures du Monde Anglophone, Université Sorbonne Nouvelle Paris 3

Sandra BENAZZO sandra.benazzo@gmail.com Laboratoire Structures Formelles du Langage, Université Paris 8 & CNRS

†Josie BERNICOT www.josiebernicot.fr Centre de Recherches sur la Cognition et l'Apprentissage, Université de Poitiers & CNRS

Alain BERT-ERBOUL alain.bert-erboul@univ-poitiers.fr Centre de Recherches sur la Cognition et l'Apprentissage, CNRS & Université de Poitiers

Marion BLONDEL marion.blondel@cnrs.fr Laboratoire Structures Formelles du Langage, CNRS & Université Paris 8 Philippe BONNET
Philippe.Bonnet@parisdescartes.fr
Laboratoire de Psychologie et
Neuropsychologie Cognitive, CNRS &
Université Paris Descartes

Dominique BOUTET dominique_jean.boutet@orange.fr Dynamique du Langage in Situ, Université de Rouen Normandie

Lucie BROC lucie.broc@unice.fr Laboratoire Bases, Corpus, Langage, Université Nice Sophia Antipolis & CNRS

Perrine BRUSINI
pbrusini@gmail.com
Center for Neuroscience in Education,
University of Cambridge, United Kingdom

Elodie CAUVET elodie.cauvet@ki.se Center for Neurodevelopmental Disorders Karolinska Institutet, Stockholm

Maud CHAMPAGNE-LAVAU maud.champagne-lavau@lpl-aix.fr Laboratoire Parole & Langage, CNRS & Université Aix-Marseille

Soonja CHOI schoi@mail.sdsu.edu San Diego State University & University of Vienna, Austria

Anne CHRISTOPHE anne.christophe@ens.fr Laboratoire de Sciences Cognitives et Psycholinguistique, CNRS, EHESS & Ecole Normale Supérieure, PSL Research University Eve V. CLARK eclark@stanford.edu Department of Linguistics, Stanford University

Jean-Marc COLLETTA jean-marc.colletta@u-grenoble3.fr Laboratoire Linguistique et Didactique des Langues Etrangères et Maternelles, Université Grenoble Alpes

Virginie DARDIER virginie.dardier@uhb.fr Centre de Recherches en Psychologie, Cognition et Communication, Université Rennes 2

Christine DA SILVA christine.da-silva@univ-lorraine.fr Laboratoire Développement, Adaptation et Handicap, Université de Lorraine, Nancy

Isabelle DAUTRICHE isabelle.dautriche@gmail.com School of Philosophy, Psychology and Language Sciences, University of Edinburgh

Alex DE CARVALHO x.de.carvalho@gmail.com Laboratoire de Sciences Cognitives et Psycholinguistique, EHESS & Ecole Normale Supérieure, PSL Research University & CNRS

Christophe DOS SANTOS christophe.dossantos@univ-tours.fr Université François-Rabelais, Tours & Centre Hospitalier Régional Universitaire de Tours, INSERM

Monik FAVART monik.favart@univ-poitiers.fr Centre de Recherches sur la Cognition et l'Apprentissage, Université de Poitiers & CNRS

Antonine GOUMI antonine.goumi@parisnanterre.fr Laboratoire Cognitions Humaine et Artificielle, Université Paris Nanterre Michèle GUIDETTI michele.guidetti@univ-tlse2.fr Laboratoire Cognition, Langues, Langage, Ergonomie, Université Toulouse Jean Jaurès & CNRS

Ariel GUTMAN Ariel.Gutman@uni-konstanz.de Zukunftskolleg & University of Konstanz

Julien HEURDIER julienheurdier28@gmail.com Laboratoire Langage, Systèmes, Discours, Université Sorbonne Nouvelle Paris 3

Maya HICKMANN Maya.hickmann@cnrs.fr Laboratoire Structures Formelles du Langage, CNRS & Université Paris 8

Harriet IISA harriet.jisa@univ-lyon2.fr Laboratoire Dynamique du Langage, Université Lumière Lyon 2 & CNRS

Michèle KAIL kail.michele@wanadoo.fr Laboratoire Structures Formelles du Langage, CNRS & Université Paris 8

Sophie KERN sophie.kern@univ-lyon2.fr Laboratoire Dynamique du Langage, CNRS & Université Lumière Lyon 2

Maria KIHLSTEDT maria.kihlstedt@parisnanterre.fr Laboratoire Modèles, Dynamique, Corpus, Université Paris Nanterre & CNRS

Angelika KOCHAN angelikakochan@gmail.com Ecole Normale Supérieure, Lyon

Ramona KUNENE NICOLAS ramona.kunenenicolas@wits.ac.za Department of Linguistics, University of Witwatersrand, South Africa Fanny LIMOUSIN fannylimousin@gmail.com Sign Language Research Laboratory, Georgetown University, Washington D.C.

Brian MACWHINNEY macw@cmu.edu Department of Psychology, Carnegie Mellon University, Pittsburgh

Haydée MARCOS marcoshaydee@gmail.com Laboratoire Langage, Systèmes, Discours, Université Sorbonne Nouvelle Paris 3

Séverine MILLOTTE severine.millotte@u-bourgogne.fr Laboratoire d'Etude de l'Apprentissage et du Développement, Université Bourgogne Franche-Comté & CNRS, Dijon

Aliyah MORGENSTERN aliyah.morgenstern@univ-paris3.fr Laboratoire Langues, Textes, Arts et Cultures du Monde Anglophone, Université Sorbonne Nouvelle Paris 3

Thierry OLIVE
Thierry.olive@univ-poitiers.fr
Centre de Recherches sur la Cognition et l'Apprentissage, CNRS & Université
de Poitiers

Asli ÖZYÜREK Asli.Ozyurek@mpi.nl Radboud University Nijmegen & Max Planck Institute for Psycholinguistics

Christophe PARISSE cparisse@parisnanterre.fr Laboratoire Modèles, Dynamique, Corpus, INSERM, Université Paris Nanterre & CNRS

Lara POLSE lara.polse@gmail.com Department of Psychology, University of California, San Diego & San Diego State University Judy S. REILLY
reilly1@mail.sdsu.edu
Department of Psychology, San Diego State
University & Université de Poitiers

Yvan ROSE yrose@mun.ca Department of Linguistics, Memorial University of Newfoundland, Canada

Anne SALAZAR-ORVIG anne.salazar-orvig@univ-paris3.fr Laboratoire Langage, Systèmes, Discours, Université Sorbonne Nouvelle Paris 3

Marie-Anne SALLANDRE marie-anne.sallandre@univ-paris8.fr Laboratoire Structures Formelles du Langage, Université Paris 8 & CNRS

Camille SCHODER c.schoder@gmail.com Laboratoire Structures Formelles du Langage, Université Paris 8 & CNRS

Helen TAGER-FLUSBERG htagerf@bu.edu Department of Psychological & Brain Sciences, Boston University

Joel UZE j.uze@ch-poitiers.fr Unité de Recherche Clinique, Centre Hospitalier Henri Laborit de Poitiers

Paul VAN GEERT paul@vangeert.nl Department of Psychology, University of Groningen

Edy VENEZIANO
edy.veneziano@parisdescartes.fr
Laboratoire Modèles, Dynamique, Corpus
& Laboratoire de Psychopathologie et
Processus de Santé, Université Paris
Descartes & CNRS

Marilyn VIHMAN mv509@york.ac.uk Department of Language and Linguistic Science, University of York

Olga VOLCKAERT-LEGRIER olga.volckaert-legrier@univ-tlse2.fr Laboratoire Cognition, Langues, Langages, Ergonomie, Université Toulouse Jean Jaurès & CNRS

Marzena WATOREK marzenawatorek@yahoo.fr Laboratoire Structures Formelles du Langage, Université Paris 8 & CNRS Sophie WAUQUIER sophie.wauquier@orange.fr Laboratoire Structures Formelles du Langage, Université Paris 8 & CNRS

Beverly WULFECK bwulfeck@mail.sdsu.edu Speech, Language, & Hearing Sciences, San Diego State University

Table of contents

List of contributors		VII	
Introduction			
Wh	aat can variation tell us about first language acquisition? Maya Hickmann, Edy Veneziano and Harriet Jisa	1	
Part I. Universals and cross-linguistic variation in acquisition			
1.	Templates in child language Marilyn Vihman and Sophie Wauquier	27	
2.	Phonological categories and their manifestation in child phonology <i>Yvan Rose</i>	45	
3.	Bootstrapping lexical and syntactic acquisition Perrine Brusini, Alex de Carvalho, Isabelle Dautriche, Ariel Gutman, Elodie Cauvet, Séverine Millotte, Pascal Amsili and Anne Christophe	63	
4.	Retrieving meaning from noun and verb grammatical contexts: Interindividual variation among 2- to 4-year-old French-speaking children Edy Veneziano and Christophe Parisse	81	
5.	Language-specificity in motion expression: Early acquisition in Korean compared to French and English Soonja Choi	103	
6.	Cross-linguistic variation in children's multimodal utterances Asli Özyürek	123	
7.	Gesture and speech in adults' and children's narratives: A cross-linguistic investigation of Zulu and French Jean-Marc Colletta, Ramona Kunene Nicolas and Michèle Guidetti	139	
Part II. Variation in input and contexts during acquisition			
8.	Conversational partners and common ground: Variation contributes to language acquisition Eve V. Clark	163	

9.	Invariance in variation: Frequency and neighbourhood density as predictors of vocabulary size Sophie Kern and Christophe dos Santos	183
10.	New perspectives on input-output dynamics: Example from the emergence of the Noun category Dominique Bassano and Paul van Geert	201
11.	Referential features, speech genres and activity types Anne Salazar Orvig, Haydée Marcos, Julien Heurdier and Christine da Silva	219
12.	Development of discourse competence: Spatial descriptions and narratives in L1 French Marzena Watorek	243
13.	Texting by 12-year-olds: Features shared with spoken language Josie Bernicot, Antonine Goumi, Alain Bert-Erboul and Olga Volckaert-Legrier	265
Par	t III. Variation in types of acquisition and types of learners	
14.	A unified model of first and second language learning Brian MacWhinney	287
15.	On-line sentence processing in simultaneous French/Swedish bilinguals Michèle Kail, Maria Kihlstedt and Philippe Bonnet	313
16.	The blossoming of negation in gesture, sign and oral productions Aliyah Morgenstern, Marion Blondel, Pauline Beaupoil-Hourdel, Sandra Benazzo, Dominique Boutet, Angelika Kochan and Fanny Limousin	339
17.	Motion expression in children's acquisition of French Sign Language Marie-Anne Sallandre, Camille Schoder and Maya Hickmann	365
18.	Early predictors of language development in Autism Spectrum Disorder Helen Tager-Flusberg	391
19.	Spoken and written narratives from French- and English-speaking children with Language Impairment Judy S. Reilly, Josie Bernicot, Lara Polse, Thierry Olive, Joel Uze, Beverly Wulfeck, Lucie Broc, Monik Favart and Mark Appelbaum	409
20.	Non-literal language comprehension: Brain damage and developmental perspectives Virginie Dardier and Maud Champagne-Lavau	427
	guage index	439
Sub	ject index	441

INTRODUCTION

What can variation tell us about first language acquisition?

Maya Hickmann¹, Edy Veneziano² and Harriet Jisa³
¹Laboratoire Structures Formelles du Langage, CNRS & Université
Paris 8 / ²Laboratoire Modèles, Dynamique, Corpus & Laboratoire de
Psychopathologie et Processus de Santé, Université Paris Descartes & CNRS /
³Laboratoire Dynamique du Langage, Université Lyon 2 & CNRS

After years of research focusing on universal regularities in child language, the study of variation has enriched our understanding of language development. Variation stems from exogenous and endogenous factors that can all influence the development of communicative capacities. This volume focuses on three main sources of variation considered from a large multimodal perspective that includes speech, gesture, and signs. First, research suggests that development partly varies with linguistic and/or cultural environments. A second source of variation stems from the input to which children are exposed across contexts. Finally, learners themselves differ along many dimensions, such as cognitive maturity, exposure to language(s), relative reliance on the visuo-gestural modality, and language impairments. The discussion highlights the need for more research on inter- and intra-individual variation within comparative perspectives allying complementary methodologies.

Keywords: exogenous/endogenous factors, input, discourse type, gesture, language impairment, linguistic and cultural environment, inter/intraindividual variation, morphosyntax, semantics

1. Why variation in language acquisition?

The study of child language has undergone a number of theoretical and methodological changes since it began around the middle of the twentieth century. The pioneering work of Roger Brown and collaborators in the late fifties and early sixties paved the way for rigorous empirically based research on child language (see for example Brown 1973 for a compendium of this early work). The novelty was to study child language on the basis of spontaneous *corpora* with a child-centered approach

aiming at uncovering the rules behind children's productions, without taking the structure of the adult language as a referent. During this period, descriptions were phrased in terms of *pivot grammars* (Braine 1963, 1976; Miller & Ervin 1964) or in terms of semantico-grammatical functions such as Agent, Beneficiary, Object, Locative, or Possessor (e.g., Bloom 1971, 1973; Brown 1973).

But how can children learn these rules and, more importantly, how can they fill the gap from child grammars to adult categories and structures? On the one hand, most approaches were based on the search for universal generalizations within different frameworks. Some of these generalizations (e.g., within a generativist approach) were aimed at uncovering innate species- and domain-specific capacities that are presumed to be biologically programmed and to underlie the human 'language faculty'. Other views (e.g., within cognitivist perspectives) have been more concerned with regularities in the development of general cognitive capacities that allow all children to gradually construct representations along several successive steps unfolding during development. Irrespective of their theoretical framework, most researchers aimed at drawing general conclusions about language acquisition, typically ignoring the variability that can be observed in development. This variability was at first considered irrelevant and viewed as an obstacle to be overcome in order to uncover the more general and universal developmental trends. With time, many authors have come to realize that variation is essential for a fuller and more subtle understanding of development as it enables us to take into account the many different factors that may impinge upon it.

The theoretical and methodological benefits derived from a focus on different types of variation during development, rather than only on common patterns, have begun to enrich our understanding of language acquisition. Variation is now frequently reported and recurrently discussed. Although it is by now recognized as an important phenomenon, it is, however, not yet sufficiently studied nor well understood. One major difficulty in studying this topic stems from its inherently heterogeneous and multidimensional nature, requiring a multidisciplinary approach allying complementary domains of research (e.g., linguistics, cognitive, social and developmental psychology, neuroscience), each of which contributes its own methodologies to the research.

Until the nineties, the general methodology primarly consisted of longitudinal studies of the language production from early on of a few children speaking essentially one particular language. Over the years, and with the growing importance of the *Child Language Data Exchange System* – CHILDES (MacWhinney 1991/2000), these databases were gradually expanded to include representative samples of

Also available at http://childes.talkbank.org/

different types of learners (e.g., children/adults, monolinguals/bilinguals) at different ages and in different language groups. They were also more often complemented by experimental methods testing language production and comprehension with both off-line and on-line measures (eye-tracking paradigm, e.g., Papafragou, Hulbert & Trueswell 2008), with neurophysiological measures of brain functioning (ERP, EEG, fMRI, e.g., Brusini et al. 2016; Friederici & Thierry 2008, for infant research) and with various modeling techniques specifically devoted to different aspects of language development (e.g., Edelman & Waterfall 2007; Freudenthal, Pine, Aguado-Orea & Gobet 2007; Pearl 2010).

Contrary to earlier periods, accounts of development now aim at incorporating variation into developmental models rather than simply treating it as a kind of "noise" in the data. As a result, models built around the abstract notion of an "ideal native speaker" have been substantially revised. Such models assumed that adult native speakers were typically monolinguals, displayed similar behaviors guided by the same norms across all contexts. Such an ideal speaker has become rare in the context of fluctuating populations in which many, if not most, speakers are nowadays bilingual or multilingual to different extents.

In addition, classical models view learners (adults or children) as following a linear progression along successive or recurrent steps (e.g., phases, stages, competence levels) leading them toward the full knowledge of competent native speakers. Previous studies (Brown 1973; Slobin 1985; also see more recent discussions in Carlucci & Case 2013; Plunkett & Markman 1991; Marcus, Pinker, Ullman, Hollander, Rosen & Fei Xu 1992; Siegler 2004) have shown the existence of U-shaped curves during development, reflecting children's transition from rote learning to rule-based overgeneralizations. For example, during the development of morphology in English, children follow a three-step process whereby they first use correct forms, then incorrect but plausible ones, and finally, correct forms again but now rule-based and taking exceptions into account (e.g., drank, drinked, drank; feet, foots, feet). Although the idea that learners "progress" overall throughout development is still valid, new approaches also admit variable or "fuzzy" learning processes that also take into account other types of non-linear developmental patterns at some moments during language learning (e.g., van Geert 1991, 2010).

In light of increasing data indicating the importance of variation in language acquisition, new theoretical questions have emerged, some of which with important implications for applications in fields such as language teaching or clinical intervention for language-impaired speakers. What are the factors creating variation? How do these factors operate, and are they interrelated? If so much variability exists, can we still draw conclusions about general developmental patterns that could apply to all children in all learning contexts at the risk of ignoring a great number of important factors that influence development? Is it still possible to find strong regularities

behind highly variable developmental patterns? More generally, can this variability contribute to a better understanding of language acquisition, and if so, how?

The present volume presents a large number of papers that address some of these questions. The next section (Section 2) provides a brief overview of some of the factors that contribute to different types of variation in language acquisition. We then turn to the specific content of the chapters themselves (Section 3). These contributions are organized into three parts according to their contribution to the different factors that partially constrain development: universal vs. language-specific aspects of language development, properties of the input to which children are exposed, and characteristics of the learners themselves.

2. Factors and types of variation

Variation can stem from two types of factors: exogenous and endogenous factors. After a brief description of these two types of factors (2.1), we illustrate variation that may result from either or both of these sets of factors, such as the ones briefly summarized below: variation between and within individuals (2.2), variation related to developmental periods (2.3), and variation due to the specific modalities (speech, gesture, signs) which contribute to the development of communication (2.4).

2.1 Exogenous and endogenous factors

Exogenous factors that might affect language acquisition involve the different environments in which learning takes place, while endogenous factors involve dimensions of the learners themselves. Each of these sets of factors may impact the rate and course of development and they may in part interact with each other.

Exogenous factors include a myriad of variables, such as socio-economic status, cultural environment, exposure to different kinds of language use or discourse types, linguistic features that are variable across languages (or language types), speakers' sociolinguistic history such as degrees and types of bilingualism (simultaneous vs. delayed bilingualism) and/or exposure to more than one language (typologically close or distant from each other), quantity and quality of social interaction with siblings, peers, and/or adults.

Endogenous factors include many dimensions characterizing learners such as: gender, age, level of verbal and non-verbal cognitive and socio-cognitive abilities in different domains of mental functioning (e.g., reasoning capacities, conceptual development, increasing memory capacities, executive functions, "Theory of Mind"), language learning "styles" or "strategies", as well as other inter-individual differences