

The acquisition of verbal morphology in coclear-implanted and specific language impaired children

Hammer, A.

Citation

Hammer, A. (2010, May 25). The acquisition of verbal morphology in coclear-implanted and specific language impaired children. LOT dissertation series. Utrecht. Retrieved from https://hdl.handle.net/1887/15550

Version: Not Applicable (or Unknown)

License: License agreement concerning inclusion of doctoral thesis in the

Institutional Repository of the University of Leiden

Downloaded from: https://hdl.handle.net/1887/15550

Note: To cite this publication please use the final published version (if applicable).

The acquisition of verbal morphology in cochlear-implanted and specific language impaired children

Published by LOT Janskerkhof 13 3512 BL Utrecht The Netherlands

phone: +31 30 253 6006 fax: +31 30 253 6000 e-mail: lot@let.uu.nl http://www.lotschool.nl

Cover illustration: Carina de Beukelaer (The Eargroup)

ISBN 978-94-6093-032-4 NUR 616

Copyright $\ensuremath{\mathbb{C}}$ 2010: Annemiek Hammer. All rights reserved.

The acquisition of verbal morphology in cochlear-implanted and specific language impaired children

PROEFSCHRIFT

ter verkrijging van de graad van Doctor aan de Universiteit Leiden, op gezag van Rector Magnificus prof. mr. P.F. van der Heijden, volgens besluit van het College voor Promoties te verdedigen op dinsdag 25 mei 2010 klokke 15.00 uur

door

Annemiek Hammer

geboren te Hengelo in 1981

Promotiecommissie

Promotores: Prof. dr. J.E.C.V. Rooryck (Universiteit Leiden)

Prof. dr. S. Gillis (Universiteit Antwerpen)

Prof. dr. M.M.R. Coene (Vrije Universiteit/Universiteit Leiden)

Overige leden: Prof. dr. P. Govaerts (Universiteit Antwerpen/ De Oorgroep)

Prof. dr. N.O. Schiller (Universiteit Leiden)

Dr. K. Schauwers (Universiteit Antwerpen/ De Oorgroep)

The research reported here was conducted in the context of the Dutch Organization for Scientific Research (NWO) funded VIDI-project: morphosyntactic development of children with cochlear implants. A comparison with children using hearing aids, normally hearing children and children with SLI awarded to prof. dr. Martine Coene, principal investigator.

Acknowledgements

Writing a dissertation is a solo project; doing research is not. As the topic of this dissertation involves the acquisition of language, doing research was only possible thanks to the many children willing to talk about themselves and their families in front of the camera. I gratefully acknowledge all children, parents, teachers, language pathologists and school boards of KIDS in Hasselt, Jonghelinckshof in Antwerp, Bertha Mullerschool in Utrecht, Triangel in Hengelo, Sint Jozefschool in Antwerp and Sint Laurensinstituut in Wachtebeke.

I had the privilege to spend the first three months of my research at the CNTS (University of Antwerp) and The Eargroup in Antwerp-Deurne. I would like to thank my fellow (and former fellow) researchers at the CNTS. Also thanks to the staff of The Eargroup for teaching me about audiology and cochlear implants and for their hospitality. Special thanks to Paul Govaerts, head of The Eargroup, for giving me valuable comments on my data analysis. My stay in Antwerp gave me the opportunity to join a group of colleagues who were all doing research on language acquisition and were working with cochlear-implanted children. Working in a team inspires and makes hard work easier.

For this dissertation almost 100 spontaneous speech samples have been recorded. Anyone who has worked with this kind of data knows that it is a time consuming business to get these recordings ready for analysis. I had the luck of working together with Agnita, Annemie, Coby, Eva, Ineke, Karen, Martine & Øydis. Thanks to all! I also want to thank Eva and Charlotte for helping me preparing the experiment and testing the children.

Even the loneliest writing days become bearable when you have nice people to have lunch with, to drink beer with, to do sports with and to learn from. I thank all my colleagues at the LUCL, Leiden University, who have become really close to me.

I would also like to thank my friends for being interested in my research and above all in me. During the past three years, I sometimes lost myself in this research and dissertation. I am very grateful to have friends who showed me that, and I quote Maarten, 'there is more to life than a dissertation'. That is true and I hope that within a couple of years we will go on holiday without books and articles!

I warmly thank those individuals whose names I am not supposed to mention according to the Leiden tradition. They have encouraged me to do more than I thought I could - which is more than I had ever expected.

Geloven in wat je doet is mij ingegeven door mijn ouders.

CONTENTS

CHAPTER 1	General introduction	1
CHAPTER 2	Introducing hearing- and language-impaired child	dren
1. Intro	oduction	9
2. Hear	ring impairment and intervention	
	2.1 Anatomy of the ear	10
	2.2 Auditory perception	11
	2.3 Sensorineural hearing loss	14
	2.4 Hearing rehabilitation	
	2.4.1 The classical hearing aid	15
	2.4.2 The cochlear implant	17
3. Lang	guage development in CI children	
	3.1 Effectiveness of CI in language development	19
	3.2 Variability in language outcomes	20
	3.3 Sensitive period and age at implantation	22
	3.4 Variability across language domains:	
	grammatical morphology	24
4. Spec	ific language impairment	
	4.1 Definition	25
	4.2 Delayed verbal morphological development	25
	4.3 SLI accounts	26
	4.3.1 A genetic language-specific disorder	26
	4.3.2 A general cognitive disorder	27
CHAPTER 3	Background: The acquisition of agreement and te	ense
1. Intro	oduction	29
2. Fron	n infinite to finite	
	2.1 The Optional Infinitive stage	30
	2.2 Full vs Reduced Competence Hypothesis	31
	2.2.1 The Reduced Competence Hypothesis	33
	2.2.2 The Full Competence Hypotheses	33
	2.3 An input bias?	38
3. The	acquisition of tense	

3.1 Temporal reference of RIs	39
3.2 The aspect-tense interface	41
3.3 Regular and irregular past tense	43
3.3.1 The dual-route model	43
3.3.2 The single-route model	44
4. Tense and cognitive maturation	
4.1 Deontic and epistemic modality in RIs	44
4.2 Theory of Mind and complementation	45
4.3 Sequence of Tense and Theory of Mind	46
5. Summary	48
5. Summary	10
CHAPTER 4 Language assessment and research method	
1. Introduction	49
2. Language assessment	
2.1 Objectives in language assessment	50
2.2 Methodological concepts: reliability and validity	
2.2.1 Defining reliability	51
2.2.2 Defining validity	54
2.3 Methodological concepts in language assessment tools	
3. The STAP-test	
3.1 The STAP-method	57
3.2 Psychometric review	58
3.3 Implications and considerations	60
4. Reliability and validity testing	
4.1 Participants	61
4.2 Data collection	61
4.3 Results	61
4.4 Conclusion	66
1.1 Conclusion	00
CHAPTER 5 The acquisition of agreement	
SECTION 5.1 CI children in comparison to HA children	
1. Abstract	69
2. Introduction	70
3. Research purposes	72
4. Research method	74
5. Results	79
6. Discussion	87
7. Conclusion	91

SECTION 5.2 CI children in comparison to SLI children

	1. Intro	duction	93
	2. Lang	uage processing	
		2.1 Low-level auditory processing	94
		2.2 High-level cognitive processing	95
	3. Perce	eptual salience	96
		3.1 The Surface Account	96
		3.2 Perceptual salience and hearing impairment	97
	4. Hypo	otheses	98
	5. Resea	arch method	99
	6. Resu	lts	
		6.1 General language and verbal morphological	
		production	104
		6.2 Combining scores on MLU and verbal morphology	111
		6.3 Analysis of agreement errors	114
	7. Discı		118
	8. Conc	lusion	121
CHAPT	ER 6	The acquisition of past tense	
	1. Intro	duction	123
	2. The <i>a</i>	acquisition of past tense in TD children	
		2.1 First past tense forms	124
		2.2 Overgeneralizations	125
		2.3 U-shaped development of irregular past tense	126
		2.4 Past tense marking of nonce verbs	127
	3. The a	acquisition of past tense in SLI children	
		3.1 Regular past tense	129
		3.2 Overgeneralizations	130
		3.3 Irregular past tense	130
		3.4 Cross-linguistic differences	131
	_	uency effects in past tense acquisition	132
	5. Нурс		134
	6. Past	tense production in spontaneous speech	40-
		6.1 Research method	135
		6.2 Results	138
	7 D	6.3 Summary	141
	/. Past	tense elicitation task	4 4 4
		7.1 Research method	141
		7.2 Results elicitation task	

7.2.1 Regular past tense	149
7.2.2 Irregular past tense	152
7.2.3 Past tense of nonce verbs	157
7.2.4 Frequency effects	160
7.2.5 Correlation analysis of target-like past te	ense
production	162
7.3 Summary	165
8. Discussion	166
8.1 The effect of perceptual salience on past tense ma	rking 168
8.2 Morpheme-in-Noise Perception Deficit Hypothes	is 169
8.3 Frequency effects	171
8.4 L2 past tense acquisition	172
8.5 Morphological generalizations	174
8.6 Study limitations	175
9. Conclusion	176
CHAPTER 7 General conclusion	
1. Introduction	179
2. The acquisition of agreement	181
3. The acquisition of past tense	182
4. Age at implantation and hearing age	184
5. Perceptual salience	188
6. Future research	190
7. Clinical implications	191
APPENDICES	
Appendix to CHAPTER 4	195
Appendix to CHAPTER 5	197
Appendix to CHAPTER 6	203
REFERENCES	215
ILLI LILLIACES	213
	225
SAMENVATTING IN HET NEDERLANDS	227
CVIDALCUL VIA VIII I E	225
CURRICULUM VITAE	235