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

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APPENDICES

Appendix to CHAPTER 4

Initials, gender and age at testing for the TD and SLI children participating in the reliability/validity study of the STAP test.

	<i>initials</i>	<i>gender</i>	<i>age</i>	
6 yrs				
<i>TD children</i>	CHA	V	6;01.13	
	ELL	V	6;02.26	
	MAG	V	5;11.27	
	NIN	V	6;03.26	
	NON	V	6;02.26	
	NOT	M	6;09.26	
	SEP	M	6;00.07	
	TIN	V	6;02.04	
	ELL	V	6;09.24	
	IAN	V	6;09.15	
	JAN	M	6;09.29	
	JAS	M	6;10.05	
	ANN	V	6;04.20	
	LOW	M	6;03.21	
				<i>Corpus</i>
<i>CI children</i>	BER	M	6;00.10	B&K
	PIM	M	6;00.13	B&K
	HES	M	6;00.24	B&K
	JEL	M	6;01.13	B&K
	JOE	M	6;01.26	B&K
	RAM	M	6;02.10	B&K
	JOO	M	6;07.22	B&K
	CAT	V	6;10.04	Leiden
	SAN	M	6;05.01	Leiden
	RUB	M	6;08.27	Leiden
	SYB	M	6;06.10	Leiden
	ELK	V	6;03.14	Leiden
	KOE	M	6;05.19	Leiden
	JOR	M	6;11.17	Leiden
	RUB	M	6;05.06	Leiden

Appendix to CHAPTER 5

Table 1. Summary of the unaided and aided hearing thresholds averaged over 500, 1000 and 2000Hz as measured for the best ear for the CI and HA children.

	<i>age</i>	<i>CI-children</i>			<i>HA-children</i>		
		M	SD	range	M	SD	range
unaided threshold dB(HL)	4 years	109	13	82-120	78	9	70-95
	5 years	108	12	85-120	62	14	42-82
	6 years	114	9	92-120	61	18	42-81
	7 years	113	10	87-120	64	19	40-93
aided threshold dB(HL)	4 years	34	9	20-55	31	3	27-37
	5 years	33	5	25-42	31	4	27-37
	6 years	31	6	25-42	24	11	12-33
	7 years	34	9	20-42	27	3	22-28

Table 2. Means, standard deviations and ranges for obligatory contexts for finite verbs and omission of finite verbs in these contexts, and for total number of finite verbs production and the number of verb morpheme errors.

<i>CI children</i>	<i>Finite verb production in obligatory contexts</i>		<i>bound verb morpheme production</i>	
	Obligatory Contexts	Finite verb omission	Total number of finite verbs	Verb morpheme errors
4yrs M(SD)	41.8 (7.49)	2.67 (3.24)	41.3 (12.76)	2.53 (3.44)
Range	28 – 50	0 – 10	17 – 56	0 – 14
5yrs M(SD)	45.6 (4.24)	2.36 (2.24)	45.3 (7.62)	1.86 (1.29)
range	38 – 50	0 – 9	32 – 59	0 – 4
6yrs M(SD)	48.7 (1.25)	1.30 (1.49)	50.8 (5.37)	3.30 (3.47)
range	47 – 50	0 – 5	43 – 59	1 – 12
7yrs M(SD)	47.9 (3.72)	1.11 (1.27)	53.6 (7.14)	2.56 (2.65)
range	40 – 50	0 – 3	42 – 63	0 – 9
<i>HA children</i>				
4yrs M(SD)	43.9 (3.07)	3.80 (3.62)	40.5 (6.50)	3.20 (3.05)
range	39 – 48	0 – 11	27 – 49	0 – 10
5yrs M(SD)	42.2 (4.82)	1.78 (2.17)	43.1 (8.98)	3.22 (2.86)
range	34 – 49	0 – 7	27 – 56	0 – 8
6yrs M(SD)	42.7 (6.35)	0.50 (0.55)	44.8 (8.57)	2.17 (2.64)
range	33 – 49	0 – 1	30 – 53	0 – 7
7yrs M(SD)	45.5 (3.21)	1.33 (2.34)	47.7 (7.55)	2.33 (2.58)
range	40 – 48	0 – 6	35 – 56	0 – 6

Table 3. Initials of each subject in the CI group with their gender, age at testing, their Age At Implantation (AAI) in months, the type of device they are using, their unaided Hearing Loss (HL) and aided Hearing Loss in dBHL.

<i>initials</i>	<i>gender</i>	<i>age</i>	<i>AAI</i>	<i>device</i>	<i>unaided HL</i>	<i>aided HL</i>
<i>4 yrs</i>						
LOU	V	4;00.30	11	Nucleus Sprint	120	35
STE	M	4;02.09	15	Nucleus 24	120	38
AMB	V	4;00.09	13	Nucleus 24	120	38
ANN	V	4;00.02	7	Nucleus 24	120	30
EMM	V	4;00.03	10	Nucleus 24	115	25
JOR	M	3;11.27	18	Nucleus 24	113	35
KLA	M	3;11.27	17	Nucleus 24	93	35
MIG	M	3;11.30	9	Nucleus 24	120	38
ROX	V	3;10.26	6	Nucleus 24	117	23
TES	V	4;00.10	19	Nucleus 24	112	55
YAR	V	4;00.14	9	Nucleus 24	103	42
FEM	V	4;00.21	17	Nucleus 24	115	20
AIS	V	4;10.24	35	Digisonic SPk	92	32
REN	M	4;08.30	18		91	27
SEP	M	4;11.25	18	Nucleus Sprint	82	32
<i>5 yrs</i>						
LIN	V	5;04.06	35	Nucleus Sprint	113	28
ANN	V	5;00.11	7	Nucleus 24	120	27
EMM	V	4;11.25	10	Nucleus 24	115	25
JOR	M	4;11.27	18	Nucleus 24	115	42
KLA	M	4;11.30	17	Nucleus 24	113	32
MIG	M	5;00.04	9	Nucleus 24	120	37
ROX	V	5;01.08	5	Nucleus 24	117	28
TES	V	5;00.08	19	Nucleus 24	112	42
YAR	V	5;00.07	9	Nucleus 24	103	32
JAM	M	5;10.10	28	Nucleus 24	85	40
LAU	V	5;08.14	34	Digisonic SP20	113	35
VAL	M	5;04.30	28	Nucleus 24	92	33
JON	M	5;09.28	22		-	32
VES	M	5;07.03	8	Nucleus 24	90	32
<i>6 yrs</i>						
AMB	V	6;00.11	13	Nucleus 24	120	35
JOR	M	6;01.19	18	Nucleus 24	115	42
EMM	V	6;00.10	10	Nucleus 24	115	25
KLA	M	6;01.09	17	Nucleus 24	113	28
AXE	M	6;00.28	43	Digisonic SPk	120	38
HAN _g	V	6;00.29	9		-	33
HAN _r	V	6;08.23	10	Nucleus 24	92	25
MIG	M	6;00.15	9	Nucleus 24	120	27
ROX	V	6;00.26	5	Nucleus 24	117	27

TES	V	6;01.02	19	Nucleus 24	112	33
7_{yrs}						
AMB	V	7;01.09	13	Nucleus 24	120	35
EMM	V	7;00.27	10	Nucleus 24	115	20
JOR	M	7;01.14	18	Nucleus 24	115	42
KLA	M	7;00.18	17	Nucleus 24	113	28
LIA	M	7;01.17	25	Nucleus Sprint	87	40
MIG	M	7;02.08	9	Nucleus 24	120	40
ROX	V	7;00.19	5	Nucleus 24	117	22
TES	V	7;00.07	19	Nucleus 24	112	42
BRE	M	7;09.03	23	Digisonic SP20	115	35

Table 4. Initials of each subject in the HA group with their gender, age at testing, their unaided Hearing Loss (HL) and aided Hearing Loss in dBHL.

	<i>initials</i>	<i>gender</i>	<i>age</i>	<i>unaided HL</i>	<i>aided HL</i>
<i>4 yrs</i>					
	EVI	V	4;07.27	95	37
	BRU	M	4;01.08	81	33
	CLA	V	4;01.05	70	28
	HAN	V	3;11.27	70	27
	LAN	M	3;11.20	70	28
	LOU	M	4;00.07	82	30
	ZEN	M	4;01.22	-	-
	MOR	V	4;08.25	82	30
	MAR	V	4;07.26	70	32
	SEP	M	4;11.25	-	-
<i>5 yrs</i>					
	CAR	V	5;11.24		
	HAN	V	5;00.27	70	27
	JES	M	5;00.11	68	28
	LOB	V	5;00.21	57	33
	LOU	M	5;02.20	82	37
	ANO	V	5;00.21	-	-
	ELI	V	5;02.21	42	-
	LOT	V	5;02.14	-	-
	VAL	M	5;00.13	55	30
<i>6 yrs</i>					
	BRU	M	6;00.19	81	33
	HAN	V	6;00.29	70	27
	GWE	V	6;03.04	-	-
	ELI	V	6;09.08	42	-
	JIN	V	6;04.15	50	12
	SEP	M	6;10.03	-	-
<i>7 yrs</i>					
	BAS	M	7;04.05	72	-
	HAN	V	7;00.04	70	27
	JUL	V	7;10.00	40	28
	JUS	V	7;00.16	93	28
	LOB	V	7;02.03	57	28
	MAT	M	7;11.19	52	22

Table 5. Initials of each subject in the SLI-group with their gender, age at testing, and corpus (B&K = Bol & Kuiken and Leiden = collected for this study).

	<i>initials</i>	<i>gender</i>	<i>age</i>	<i>corpus</i>
<i>4 yrs</i>				
	RIN	V	4;01.16	B&K
	PIE	M	4;07.20	B&K
	REN	M	4;08.21	B&K
	MON	V	4;09.08	B&K
	COB	M	4;05.03	Leiden
<i>5 yrs</i>				
	WIL	V	5;01.02	B&K
	DIA	V	5;01.04	B&K
	LIE	V	5;03.07	B&K
	PAS	M	5;04.28	B&K
	MAR	M	5;11.22	B&K
	NIE	M	5;05.06	Leiden
	KUR	M	5;10.00	Leiden
	TIN	V	5;07.23	Leiden
	PAL	V	5;03.05	Leiden
<i>6 yrs</i>				
	BER	M	6;00.10	B&K
	PIM	M	6;00.13	B&K
	HES	M	6;00.24	B&K
	JEL	M	6;01.13	B&K
	JOE	M	6;01.26	B&K
	RAM	M	6;02.10	B&K
	JOO	M	6;07.22	B&K
	CAT	V	6;10.04	Leiden
	SAN	M	6;05.01	Leiden
	RUB	M	6;08.27	Leiden
	SYB	M	6;06.10	Leiden
	ELK	V	6;03.14	Leiden
	KOE	M	6;05.19	Leiden
	JOR	M	6;11.17	Leiden
	RUB	M	6;05.06	Leiden
<i>7 yrs</i>				
	PJO	M	7;00.18	B&K
	SJO	V	7;01.26	B&K
	KEE	M	7;04.19	B&K
	SOF	V	7;08.19	Leiden
	WIL	M	7;06.08	Leiden
	GIA	M	7;05.10	Leiden
	YEN	V	7;00.02	Leiden
	SEL	V	7;01.24	Leiden
	JUL	V	7;06.07	Leiden

Appendix to CHAPTER 6

Past tense elicitation task

Elicitation movie Bob and Boris are building a sandcastle



SCRIPT past tense elicitation task (stimuli in bold)*Practice items*

Bob **gooit** de bal.
'Bob throws the ball'

Gisteren toen gooide Bob de bal
'Yesterday, Bob threw the ball'

Boris **loopt** naar school.
'Boris walks to school'

Gisteren toen liep Boris naar school.
'Yesterday, Bob walked to school'

Script

Dit is Bob.
'This is Bob'

En dit is Boris.
'And this is Boris'

1. 'Hallo' **zegt** Bob.
'Hello' says Bob'
 Gisteren toen zei Bob 'Hallo'.
'Yesterday, Bob said 'hello'

Boris zegt hallo terug.
'Boris says hello to Bob'

Bob en Boris zijn elkaars beste vrienden.
'Bob and Boris are each others best friends'

2. Vandaag **spelen** zij in de speeltuin.
*'Today they **play** in the playground'*
 Gisteren toen speelden zij in de speeltuin.
'Yesterday, the played in the playground'

3. Bob **schommelt** even.
*'Bob **swings** for a while'*
 Gisteren toen schommelde Bob.
'Yesterday, Bob swung for while'

4. Boris **legt** zand in de emmer.
'Boris puts sand in the bucket'
 Gisteren toen legde Boris zand in de emmer.
'Yesterday, Boris put sand in the bucket'
 5. Ondertussen **jopt** Bob naar onderen.
'Meanwhile, Bob jops down'
 Gisteren toen jopte Bob naar onderen.
'Yesterday, Bob jopped down'
 6. Bob **brengt** een schep naar Boris.
'Bob brings a shovel to Boris'
 Gisteren toen bracht Bob een schep naar Boris.
'Yesterday, Bob brought a shovel to Boris'
 7. Boris **glijft** achter het kasteel.
'Boris gliffs behind the castle'
 Gisteren toen gleef Boris achter het kasteel.
'Yesterday, Boris gleef behind the castle'
 8. Samen **prommelen** ze naar voren.
'Together, they prommel to the front'
 Gisteren toen prommelden zij samen naar voren.
'Yesterday, they prommeled to the front'
- Het kasteel ziet er al heel mooi uit.
'The castle look very nice already'
- Bob heeft dorst gekregen van het harde werken.
'Bob got thirsty from all the hard work'
9. Dus **stoppen** zij eventjes.
'So they stop for a minute'
 Gisteren toen stopten zij eventjes.
'Yesterday, they stopped for a minute'
- Ze gaan limonade drinken.
'They are going to drink lemonade'
10. Boris **tegt** de limonade.
'Boris tegs the limonade'
 Gisteren toen tegde Boris de limonade.

'Yesterday, Boris tegged the limonade'

Dat vinden ze wel lekker!

'That's what they like!'

11. Oh oh, Bob **wotst** teveel.

'[interjection], Bob wots to much'

Gisteren toen wotste Bob teveel.

'Yesterday, Bob wotsed to much'

12. En oh nee! Daar **valt** het glas van Boris.

'[interjection] The glas of Boris is falling'

Gisteren toen viel het glas van Boris.

'Yesterday, the glas of Boris fell'

13. De toren van het kasteel **breekt**.

'The tower of the castle breaks'

Gisteren toen brak de toren.

'Yesterday, the castle brook'

Nu is het zandkasteel kapot.

'Now the sandcastle has broken'

14. Bob **kijkt** ernaar.

'Bob is looking at it'

Gisteren toen keek Bob ernaar.

'Yesterday, Bob looked at it'

Allebei schrikken ze.

'They are both shocked'

15. Boris **schopt** het glas weg.

'Boris kicks the glas away'

Gisteren toen schopte Boris het glas weg.

'Yesterday, Boris kicked the glass away'

Zij maken de toren opnieuw.

'They rebuild the tower'

Ze zijn hard aan't werk.

'They work hard'

16. Oeps! Ze **botsen** tegen elkaar aan.

'[interjection] the bump into each other'

Gisteren toen botsten ze tegen elkaar aan.

'Yesterday, they bumped into each other'

Bob en Boris lachen hard.

'Bob en Boris are laughing'

17. Dan **grallen** ze verder.

'Then they gral further'

Gisteren toen gralden ze verder.

'Then they gralled further'

Nu zit de toren er weer op.

'Now the tower has been rebuild'

Het kasteel is klaar.

'The castle is finished'

Oh nee, nog niet. Boris stopt er nog een vlag bij.

'[interjection], not yet. Boris puts a flag in the castle'

18. Bob **schrijft** hun namen erop.

'Bob writes their names on it'

Gisteren toen schreef Bob hun namen erop.

'Yesterday, Bob wrote their names on it'

Nu is het helemaal klaar.

'Now it's all finished'

Ze zijn er moe van geworden.

'They are very tired'

En nu naar huis!

'Lets go home!'

Table 1. Frequency counts for each N-CDI regular and irregular verbs. Counts are based on child spontaneous speech (present and past tense forms) and adult spontaneous speech (=CGN).

<i>N-CDI verb</i>	<i>reg/irreg</i>	<i>children</i>		<i>CGN</i>
		<i>present</i>	<i>past</i>	<i>past</i>
spetteren (<i>to splash</i>)	regular	0	0	0
trommelen (<i>to drum</i>)	regular	2	0	0
knuffelen (<i>to cuddle</i>)	regular	4	0	0
botsen (<i>to bump</i>)	regular	4	1	0
vegen (<i>to wipe</i>)	regular	0	0	1
schoppen (<i>to kick</i>)	regular	1	0	1
poetsen (<i>to clean</i>)	regular	3	0	1
zoenen (<i>to kiss</i>)	regular	0	0	2
schommelen (<i>to swing</i>)	regular	5	0	2
wassen (<i>to wash</i>)	regular	13	0	2
wandelen (<i>to walk</i>)	regular	1	0	3
tekenen (<i>to draw</i>)	regular	29	0	3
duwen (<i>to push</i>)	regular	11	1	4
dansen (<i>to dance</i>)	regular	13	0	6
lachen (<i>to laugh</i>)	regular	10	2	15
leggen (<i>to lay something down</i>)	regular	34	0	18
fietsen (<i>to cycle</i>)	regular	17	0	19
stoppen (<i>to stop</i>)	regular	26	0	23
gooien (<i>to throw</i>)	regular	28	0	27
draaien (<i>to turn</i>)	regular	11	0	28
spelen (<i>to play</i>)	regular	110	0	103
huilen (<i>to cry</i>)	regular	12	0	1
tonen (<i>to show</i>)	regular	7	0	7
leggen (<i>to put something away</i>)	regular	-	-	18
blazen (<i>to blow</i>)	irregular	1	0	3
breken (<i>to break</i>)	irregular	2	0	5
bijten (<i>to break</i>)	irregular	3	0	5
schrijven (<i>to write</i>)	irregular	4	0	41
slaan (<i>to hit</i>)	Irregular	4	0	32
brengen (<i>to bring</i>)	irregular	5	0	29
helpen (<i>to help</i>)	irregular	6	0	21
trekken (<i>to pull</i>)	irregular	11	0	44
zingen (<i>to sing</i>)	irregular	12	0	35
zwemmen (<i>to swim</i>)	irregular	12	0	3
drinken (<i>to drink</i>)	irregular	17	0	20
nemen (<i>to take</i>)	irregular	18	2	121
vliegen (<i>to fly</i>)	irregular	21	5	38
lezen (<i>to read</i>)	irregular	25	0	77
springen (<i>to jump</i>)	irregular	27	0	16

krijgen (<i>to get</i>)	irregular	35	0	680
rijden (<i>to ride</i>)	irregular	40	0	120
rennen (<i>to run</i>)	irregular	41	0	3
roepen (<i>to shout</i>)	irregular	43	0	37
geven (<i>to give</i>)	irregular	46	0	140
slapen (<i>to sleep</i>)	irregular	56	1	44
eten (<i>to eat</i>)	irregular	63	0	33
vallen (<i>to fall</i>)	irregular	87	7	234
zeggen (<i>to say</i>)	irregular	91	19	3676
zien (<i>to see</i>)	irregular	169	2	827
kijken (<i>to look</i>)	irregular	362	1	160
gaan (<i>to go</i>)	irregular	375	48	2987

Table 2. Initials, gender and age at testing for the participating TD children in the past tense elicitation task.

<i>The Netherlands</i>			<i>Belgium</i>		
<i>initials</i>	<i>gender</i>	<i>age</i>	<i>initials</i>	<i>gender</i>	<i>age</i>
<i>5 yrs</i>					
MON	V	4;11.29	CHA	V	5;04;00
LYN	V	5;01.07	JAN	V	5;05;12
LOT	V	5;10.24	KYA	M	5;03.10
ASH	V	5;04.12	FLO	M	5;10.05
ZAH	V	5;07.08	SYL	V	5;07.00
DOR	V	5;11.26	DOO	V	5;11.08
MAA	M	5;08.30	REN	M	5;05.14
ELI	V	-	JOA	M	5;08.16
WOU	M	5;10.20	YAM	M	5;04.03
JOE	M	5;02.27	GEN	V	5;09.24
ROS	V	5;11.16	JAN	M	5;05.29
VER	V	5;04.12	NAT	M	5;07.18
			MAU	V	5;08.27
			JES	M	5;03.23
<i>6 yrs</i>					
LUU	M	6;03.19	LIN	V	6;10.15
MAR	M	6;06.25	KLA	V	6;10.12
MYR	V	6;10.09	BEN	M	6;09.16
LAU	V	6;11.24	MAR	V	6;01.09
JOL	V	6;09.14	ACH	M	6;06.08
YAR	M	6;06.28	FAB	M	6;10.20
			YOR	M	6;02.12
			MAT	M	6;07.09
			MATT	M	6;09.01
			DAR	M	6;08.19
			NIE	M	6;05.04
			SEP	M	6;08.10
			YAN	V	6;11.17
			RIE	V	6;11.22
			MAR1	V	6;03.04
			MAR2	V	6;03.04
			KOB	M	6;10.04
			NOA	M	6;04.04
<i>7 yrs</i>					
ROM	V	7;01.13	WOU	M	7;00.02
ESM	V	7;01.22	CHA	V	7;00.05
LOE	V	7;00.26	MAR	V	7;02.16
JET	V	7;09.21	EMM	V	7;04.27
ANN	V	7;02.10	LUC	M	7;05.20
DAP	V	7;00.07	RUG	V	7;07.18

JOL	V	7;07.14	JAN	V	7;00.24
FRA	M	7;05.18	CAM	M	7;05.07
MAT	M	7;07.11	ANO	V	7;04.20
LUC	V	7;01.13	JAN	V	7;00.17
ESM	V	7;10.26	MEL	V	7;07.00
GER	V	-			
MAT	M	7;07.11			

Table 3. Initials, gender, age at testing, age at implantation (in months) and unaided hearing loss (in dBHL) for the participating CI children in the past tense elicitation task.

	<i>initials</i>	<i>gender</i>	<i>age</i>	<i>AAI</i>	<i>unaided HL</i>
<i>5 yrs</i>					
	BRI	V	5;04.14	47	88
	EVI	V	5;11.02	59	95
	LOU	V	5;06.07	11	120
	NOU	M	5;07.25	13	-
	STE	M	5;07.28	15	120
	BIL	M	5;05.11	39	-
<i>6 yrs</i>					
	FEM	V	6;00.11	17	115
	REN	M	6;02.26	43	91
	VAL	M	6;10.05	28	92
	LAU	V	6;07.23	33	113
	STIJ	M	6;04.21	10	-
<i>7 yrs</i>					
	JON	M	7;03.07	22	103
	LIA	M	7;11.28	25	87
	ANN	V	7;08.13	7	120

Table 3. Initials, gender, age at testing and hearing levels (in dBHL) for the participating SLI children in the past tense elicitation task.

	<i>initials</i>	<i>gender</i>	<i>age</i>	<i>HL</i>
<i>5 yrs</i>				
	JAN	V	5;03.30	18
	FEL	M	5;11.05	10
	CED	M	5;01.01	12
	LEN	V	5;02.05	20
	TYN	M	5;09.00	-
	RAC	V	5;01.12	-
	LAN	M	5;11.20	13
	RAF	M	5;06.03	12
<i>6 yrs</i>				
	STE	M	6;02.26	13
	FLY	V	6;01.10	-
	MAR	V	6;04.16	8
	ALY	V	6;05.23	-
	ZIT	V	6;10.30	10
	LIN	V	6;10.30	12
	BOJ	V	6;02.25	13
	LEO	V	6;06.27	13
	NAT	V	6;01.16	8
<i>7 yrs</i>				
	BRE	V	7;02.30	12
	DYL	M	7;06.09	12
	ELK	V	7;08.23	12
	KYE	M	7;01.09	12
	BRI	V	7;04.21	-
	TIN	V	7;01.03	20
	RUB	M	7;10.19	10
	ORT	M	7;01.19	12

