Table 1. VOT in Dutch, German and English

	Voicing Lead	Short Lag VOT	Long Lag VOT
Dutch	-4 ms: b, d	0-25 ms: p, t	
German		16 ms: b, d	51 ms: p, t
English		32 ms: b, d	59 ms: p, t

Table 2. Laryngeal feature representation for Dutch, German and English under the Single Feature Hypothesis, using a binary feature [±voice]

	Voicing Lead	Short Lag VOT	Long Lag VOT
Dutch	[+voice]	[-voice]	
German		[+voice]	[-voice]
English		[+voice]	[-voice]

Table 3. Laryngeal feature representation for Dutch, German and English under the Single Feature Hypothesis, using a monovalent feature [voice]

	Voicing Lead	Short Lag VOT	Long Lag VOT
Dutch	[voice]	[ ]	
German		[voice]	[ ]
English		[voice]	[ ]

Table 4. Laryngeal feature representation for Dutch, German and English under the Multiple Feature Hypothesis, [voice] and [spread glottis]

	Voicing Lead	Short Lag VOT	Long Lag VOT
Dutch	[voice]	[ ]	
German		[ ]	[spread glottis]
English		[ ]	[spread glottis]

Table 5. Predictions of the acquisition of laryngeal features based on the Single Feature Hypothesis and Multiple Feature Hypothesis-

	Representation	Unmarked	Error Type
Single Feature Hypothesis	[±voice]	[-voice]	[+voice] → [-voice]
	or		
	[voice]	[ ]	[voice] → [ ]
Multiple Feature Hypothesis	[voice] (prevoicing languages)	[ ]	[voice] → [ ]
	[spread glottis] (aspiration languages)	[ ]	[spread glottis] → [ ]

Table 6. Predictions of laryngeal errors for Dutch German and English, based on the Single Feature Hypothesis and Multiple Feature Hypothesis

	Dutch	German	English
Single Feature Hypothesis	/b/ → [p]	/b/ → [p^h]	/b/ → [p^h]
Multiple Feature Hypothesis	/b/ → [p]	/p^h/→ [p]	/p^h/→ [p]

Table 7. Distribution of voicing in child-directed speech from van de Weijer corpus

	Labials		Alveolars	
	p	**b**	**t**	**d**
types	151 (40.7%)	220 (59.3%)	104 (41.3%)	148 (58.7%)
tokens	1492 (30.9%)	3342 (69.1%)	1481 (13.6%)	9389 (86.4%)

Table 8. Distribution of voicing in child-directed speech from Kerstin's corpus

	Labials		Alveolars		Velars	
	p	**b**	**t**	**d**	**k**	**g**
types	32 (28.57%)	80 (71.43%)	52 (37.14%)	88 (62.86 %)	94 (45.63%)	112 (54.37%)
tokens	121 (20.9%)	458 (79.1%)	157 (6.24%)	2361 (93.76 %)	638 (48.55%)	676 (51.45 %)

Table 9. Evidential status of hypothetical harmony patterns for the Single Feature Hypothesis (binary and monovalent) and Multiple Feature Hypothesis

	Voicing harmony only	**Both voicing and devoicing harmony**	**Devoicing harmony only**
SFH, binary [±voice]	contra (circumstantial)	pro	contra (circumstantial)
SFH, monovalent [voice]	pro	contra	contra
MFH [voice] **or** [sg]	pro	contra	pro

Table 10. Distribution of initial stop targets in Seth's productions (types & tokens)

	Labials		**Alveolars**		**Velars**		**Total**
	p	**b**	**t**	**d**	**k**	**g**	
types	34 (37.78%)	56 (62.22%)	45 (63.38%)	26 (36.62%)	48 (72.73%)	18 (27.27%)	227
tokens	902 (58.95%)	628 (41.05%)	689 (42.98%)	914 (57.02%)	553 (45.29%)	668 (54.71 %)	4354

Table 11. Distribution of initial errors in Seth's productions

	Age	**1;7 – 1;9**		**1;10 – 1;12**		**2;0 – 2;2**		**2;3 – 2;5**		**1;7 – 2;2**	
	Realization	**[B]**	**[P]**	**[B]**	**[P]**	**[B]**	**[P]**	**[B]**	**[P]**	**[B]**	**[P]**
target /B/		372	43	273	17	690	31	775	9	2210	100
target /P/		24	537	16	627	9	551	1	379	50	2094
chi-square		$\chi2 = 13.8$ $p \leq 0.001$		$\chi2 = 6.7$ $p \leq 0.01$		$\chi2 = 7.6$ $p \leq 0.01$		$\chi2 = 2.4$ (n.s.)		$\chi2 = 13.6$ $p \leq 0.001$	

Table 12. Distribution of voicing and devoicing erors in Seth's productions (types)

	[B…]	**[P…]**
target /B…/	68	32
target /P…/	19	108
Chi-square	$\chi2 = 9.3$ $p \leq 0.01$	

Table 13. Initial devoicing as a function of following consonants

	Age	**1;7 – 1;9**		**1;10 – 1;12**		**2;0 – 2;2**		**2;3 – 2;5**		**1;7 – 2;2**	
	Realization	**[B]**	**[P]**	**[B]**	**[P]**	**[B]**	**[P]**	**[B]**	**[P]**	**[B]**	**[P]**
/B…P/		198	33	132	10	197	16	156	6	683	65
/B…B/		77	6	65	5	256	7	370	1	768	19
/B…R/		97	4	76	2	237	8	249	2	659	16

Table 14. Initial devoicing as a function of following consonants

	1;7 – 1;9	**1;10 – 1;12**	**2;0 – 2;2**	**2;3 – 2;5**	**1;7 – 2;2**
/B…P/ versus /B…B/	$\chi 2 = 2.8$ (n.s.)	$\chi 2 = 0.001$ (n.s.)	$\chi 2 = 6.0$ ($p \leq 0.025$)	$\chi 2 = 10.3$ ($p \leq 0.01$)	$\chi 2 = 29.2$ ($p \leq 0.001$)
/B…P/ versus /B…R/	$\chi 2 = 7.6$ ($p \leq 0.01$)	$\chi 2 = 2.0$ (n.s.)	$\chi 2 = 4.1$ ($p \leq 0.05$)	$\chi 2 = 4.4$ ($p \leq 0.05$)	$\chi 2 = 26.4$ ($p \leq 0.001$)
/B…B/ versus /B…R/	$\chi 2 = 0.9$ (n.s.)	$\chi 2 = 1.7$ (n.s.)	$\chi 2 = 0.2$ (n.s.)	$\chi 2 = 0.9$ (n.s.)	$\chi 2 = 0.003$ (n.s.)

Table 15. Initial voicing in relation to following consonants (tokens)

	Age	**1;7 – 1;9**		**1;10 – 1;12**		**2;0 – 2;2**		**2;3 – 2;5**		**1;7 – 2;2**	
	Realization	**[B]**	**[P]**	**[B]**	**[P]**	**[B]**	**[P]**	**[B]**	**[P]**	**[B]**	**[P]**
/P…P/		23	278	7	295	3	304	1	242	34	1119
/P…B/		1	155	0	214	0	66	0	29	1	464
/P…R/		0	104	9	118	6	181	0	108	15	511

Table 16. Initial voicing in relation to following consonants (tokens)

	1;7 – 1;9	**1;10 – 1;12**	**2;0 – 2;2**	**2;3 – 2;5**	**1;7 – 2;2**
/P…P/ versus /P…B/	$\chi2 = 10.1$ ($p \leq 0.01$)	$\chi2 = 5.0$ ($p \leq 0.025$)	$\chi2 = 0.7$ (n.s.)	$\chi2 = 0.1$ (n.s.)	$\chi2 = 11.7$ ($p \leq 0.001$)
/P…P/ versus /P…R/	$\chi2 = 8.4$ ($p \leq 0.01$)	$\chi2 = 5.7$ ($p \leq 0.025$)	$\chi2 = 3.2$ (n.s.)	$\chi2 = 0.4$ (n.s.)	$\chi2 = 0.01$ (n.s.)
/P…B/ versus /P…R/	$\chi2 = 0.7$ (n.s.)	$\chi2 = 15.6$ ($p \leq 0.001$)	$\chi2 = 2.2$ (n.s.)	(n.s.)	$\chi2 = 10.8$ ($p \leq 0.001$)

Table 17. Initial devoicing in Seth’s monosyllables, relative to context

	[B…]	[P…]
/B…P/	544	42
/B…B/	402	9
/B…R/	553	11
chi-square	$\chi^2 = 25.15$, $p \leq 0.001$	

Table 18. Final devoicing in Seth’s monosyllables, relative to context

	[B…]	[P…]
/B…P/	90	5
/B…B/	312	25
/B…R/	65	1
chi-square	$\chi^2 = 3.48$, (n.s.)	

Figure 1: Breakdown of children's ages from the CLPF database

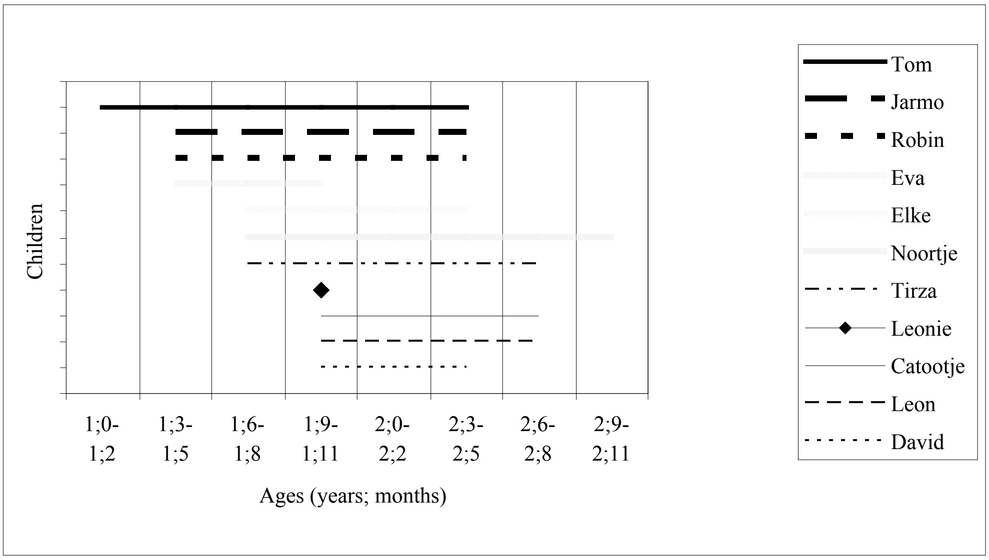

Figure 2: Number of target words (in tokens) per child

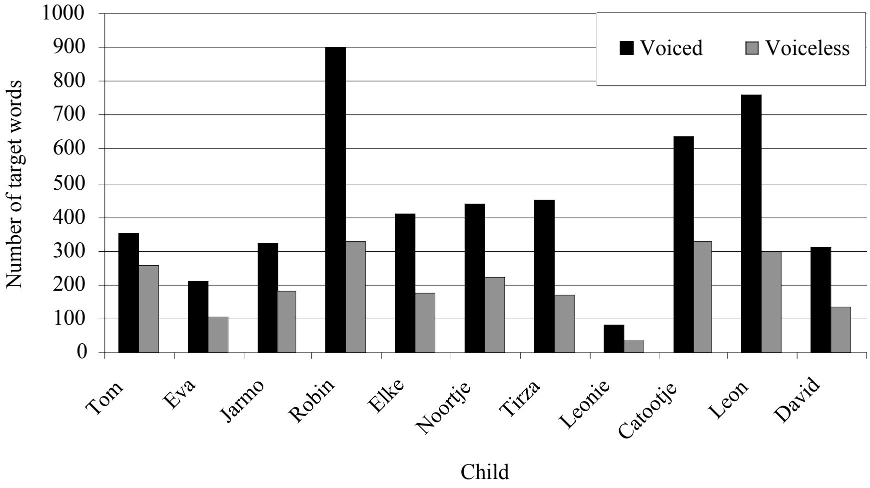

Figure 3: Error percentages of all children

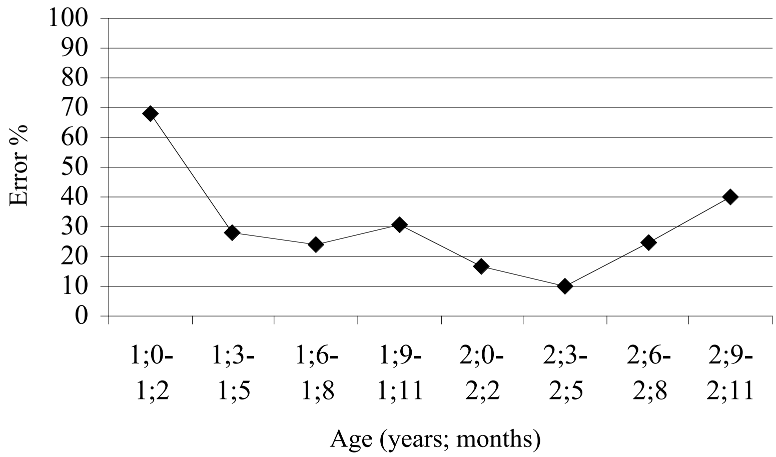

Figure 4: Percentage of errors in coronal and labials

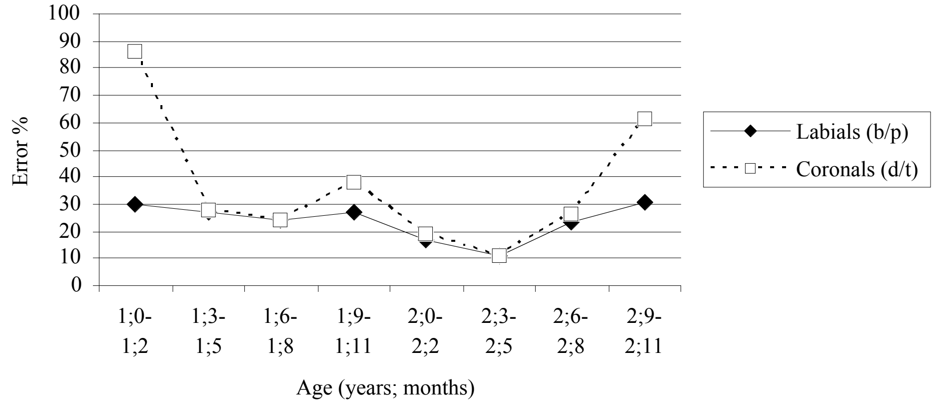

Figure 5: Percentage of voicing and devoicing errors

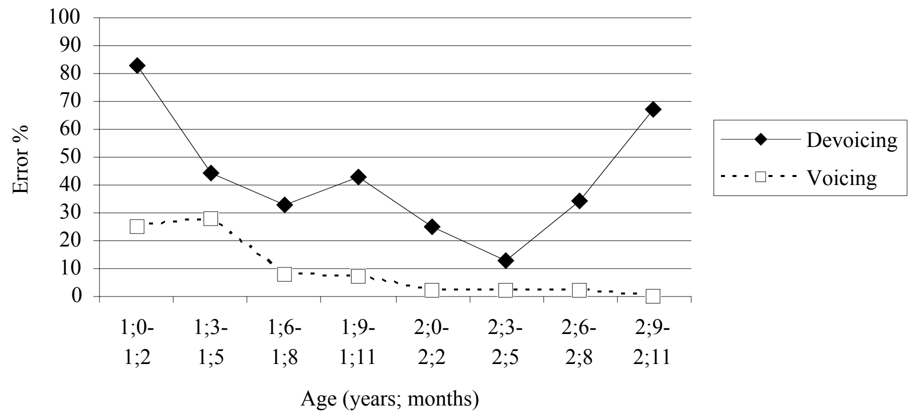

Figure 6: Onset voicing versus devoicing in Kerstin's errors

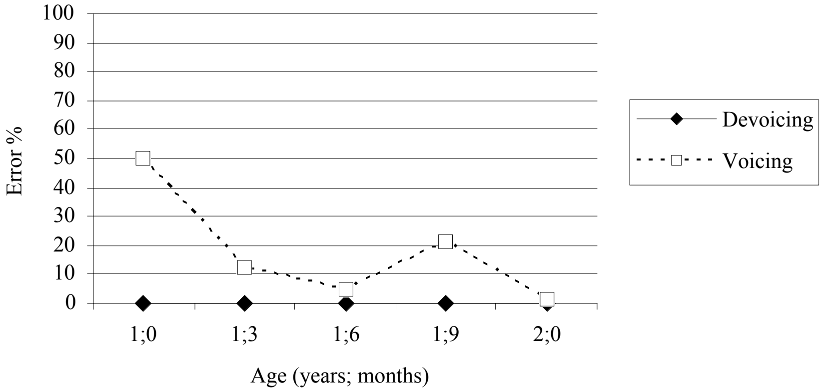

Figure 7: Amahl's development (2;2 – 2;8)

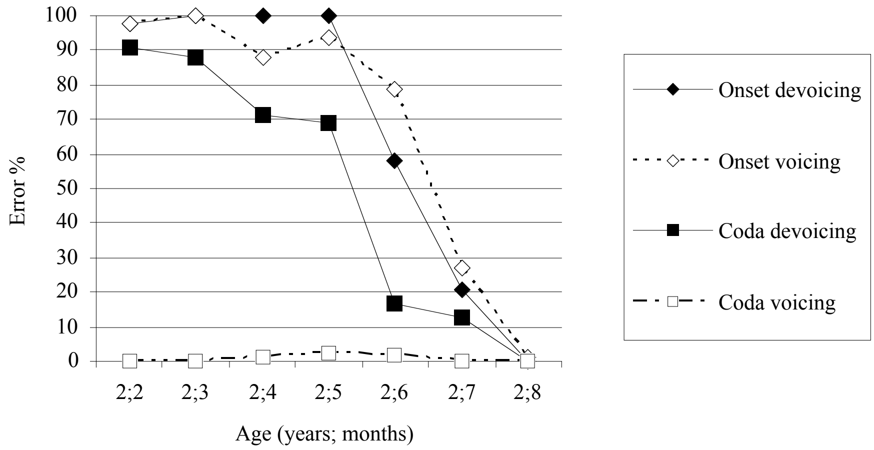

Figure 8: Direction of initial errors in Seth's productions

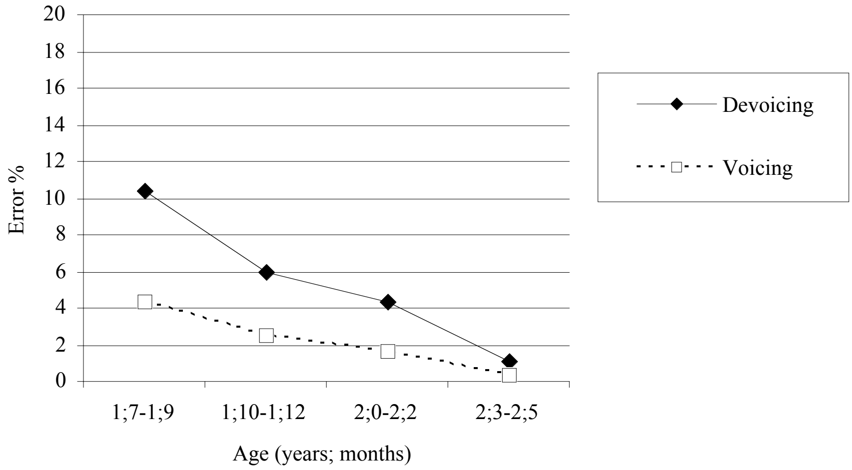

Figure 9: Initial devoicing in Seth's productions: the role of following consonants

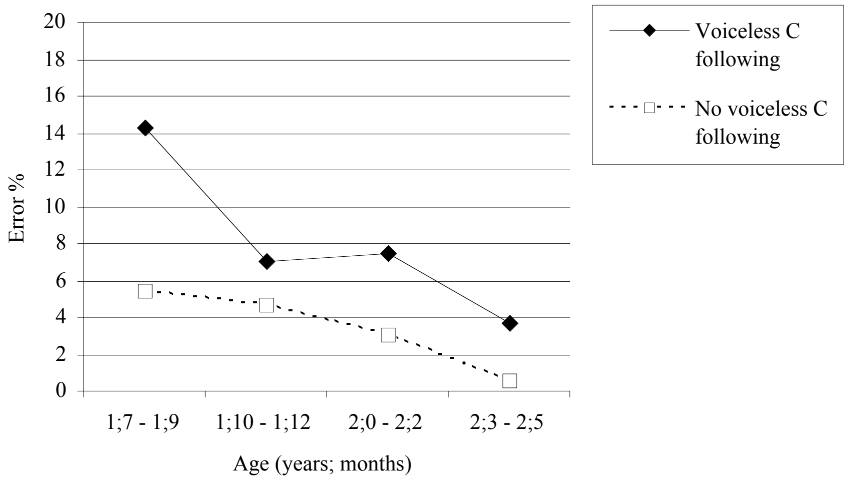

Figure 10: Mean VOT values in milliseconds for labials, alveolars and velars

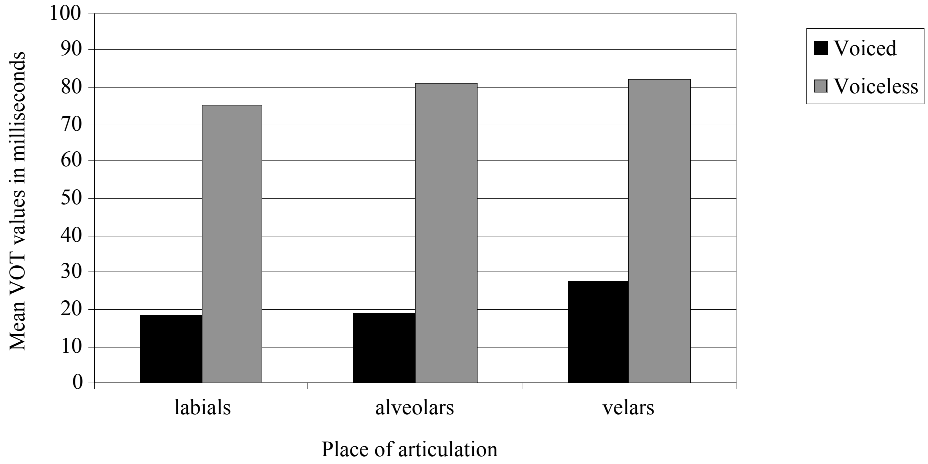

Figure 11: Error are categorical

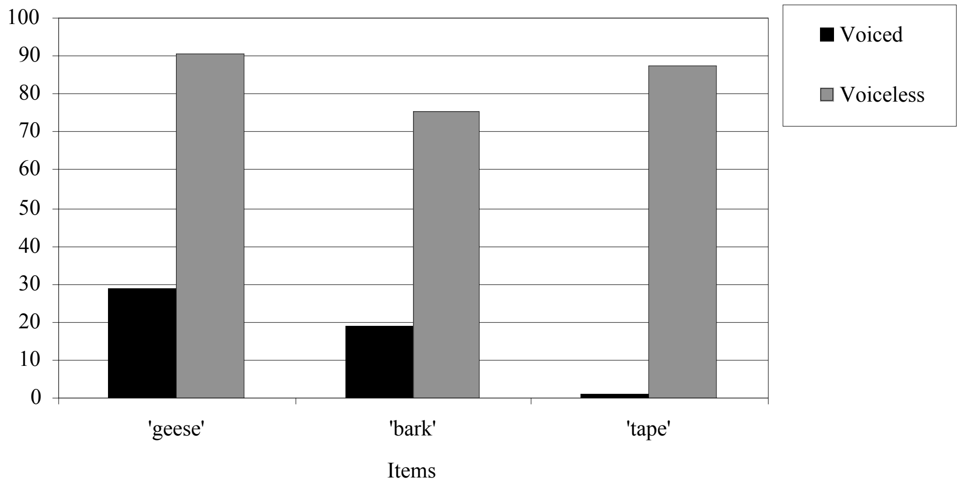

Figure 12: Initial voicing: the role of following voiced consonants

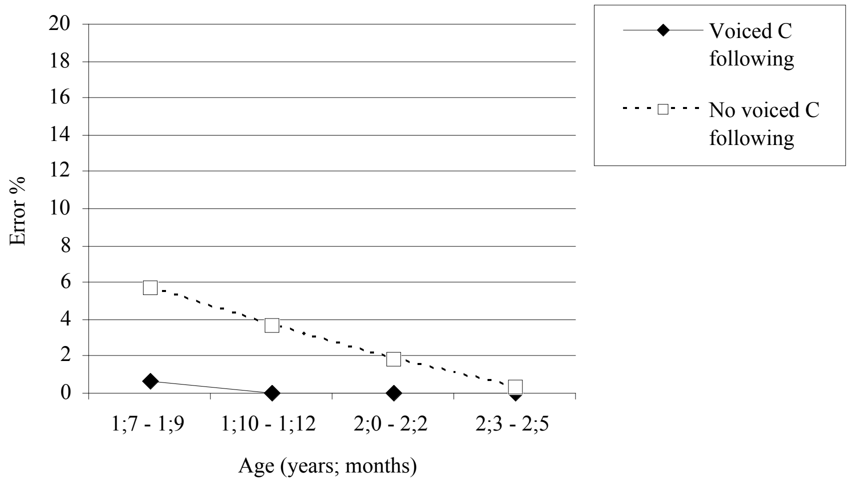

Figure 13: Laryngeal error rates for initial and final obstruents