

# On the Acquisition of Intensifier Constructions

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# Intensification

- ▶ ... used to maximize or boost meaning (Quirk et al. 1985)
  - (1) Lexical  
*very, real(ly), extremely, totally, etc.*
  - (2) Morphological  
*{uber#}, {super#}, {hyper#}, {mega#},*
- ▶ Typically adverbs that "... convey the degree [...] of the quality expressed by the item they modify."  
(Mendez-Naya 2008: 213)
  - (3) Attributive  
The **very hungry** caterpillar is always hungry.
  - (4) Predicative  
The hungry caterpillar is always **very hungry**.



# Intensification

- ▶ Extensive history of research on intensifiers (e.g. Borst 1902; Bolinger 1972)
- ▶ Intensification is considered a major area of grammatical change in English (cf. Brinton and Arnovick 2006: 441)
- ▶ Growing amount of variationist and historical research (e.g. Ito and Tagliamonte 2003; Tagliamonte and Roberts 2005; Macaulay 2006; Tagliamonte 2006)
- ▶ Very little research on the acquisition of intensification(!); an exception is (Gülzow 2006)

(5) The queen *herself* welcomed the soldiers



# Construction Grammar and L1-acquisition

Children are thought to start out with concrete pieces of language and gradually develop more schematic constructions. . . . Constructivists see these early constructions as the building blocks for later development. . . (Lieven 2006: 84–85)

Stage 1	Stage 2	Stage 3
Holophrases	Pivot schemas	Schematic constructions
↓	↓	↓
It's daddy! It's mommy! It's Elmo!	It's X <sub>NN</sub>	[Y <sub>Dem./Existential/Dummy</sub> + X <sub>NN</sub> ]
very busy very wet very hungry	very X <sub>Adjective</sub>	[Y <sub>Intensifier</sub> + X <sub>Adjective</sub> ] <i>Int. Construction</i>



## Research questions and hypotheses

- ▶ Do children acquire constraints on the use of constructions alongside the acquisition of the constructions themselves?
- ▶ Do the Type-Token-Ratios (TTRs) of intensifiers increase with age?
- ▶ Do the TTRs of intensified adjectives increase with age?
- ▶ Is the mothers' input reflected in the children's output?



## Corpus data: HSLLD

*The Home–School Study of Language and Literacy Development (part of The Child Language Data Exchange System)*

- ▶ began in 1987 (a collaborative, longitudinal research endeavor)
- ▶ participants are racially diverse, English-speaking children from low-income families growing up in the Boston area.
- ▶ transcripts collected in the home of children during 5 visits
- ▶ visits took place at ages 3 (hv1), 4 (hv2), 5 (hv3), 2nd grade (hv4) and 4th grade (hv5)
- ▶ during visits children performed different tasks: book reading, toy play, child narratives, elicited report, and experimental tasks.



# Corpus data: HSLLD

*The Home–School Study of Language and Literacy Development (part of The Child Language Data Exchange System)*

- ▶ POS-tagged all utterances in the HSLLD
- ▶ POS-tagging via the Apache OpenNLP library in R using a Maximum Entropy model (machine learning based toolkit for NLP of text written in Java)
- ▶ search for all adjectives and subsequently identified all adjectives preceded by an intensifying adverb



## Overview of the HSLLD data

Age	Sex	Speakers (N) (children)	Intens. (N) (children)	Words (N) (children)	Mean (ptw) (children)	Intens. (N) (mothers)	Words (N) (mothers)	Mean (ptw) (mothers)
3	female	21	5	21,798	0.23	52	55,948	0.93
3	male	29	6	26,574	0.23	62	58,886	1.05
4	female	40	13	46,372	0.28	96	117,369	0.82
4	male	30	13	38,454	0.34	90	91,158	0.99
5	female	35	15	50,388	0.3	96	92,245	1.04
5	male	30	12	40,314	0.3	85	78,576	1.08
6	female	6	3	4,490	0.67	6	7,319	0.82
6	male	5	2	3,304	0.61	3	4261	0.7
7	female	35	22	28,011	0.79	24	34,833	0.69
7	male	29	21	22,886	0.92	29	35,630	0.81
8	female	2	1	3,765	0.27	3	4,034	0.74
8	male	1	0	1,264	0	3	1,135	2.64
9	female	19	10	18,159	0.55	10	19,339	0.52
9	male	18	7	23,823	0.29	23	34,051	0.68
10	female	9	7	6,636	1.05	4	7,069	0.57
10	male	9	5	10,889	0.46	7	11,960	0.59
Totals		85	142	347,127	0.41	593	653,813	0.91



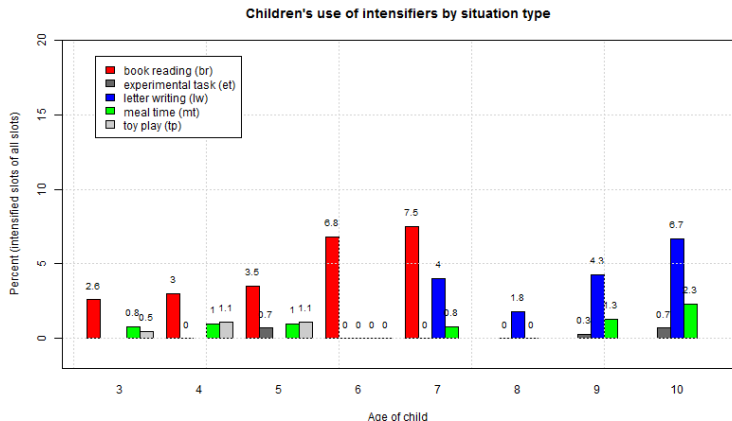


Figure: Frequency of intensification by children by age and situation type

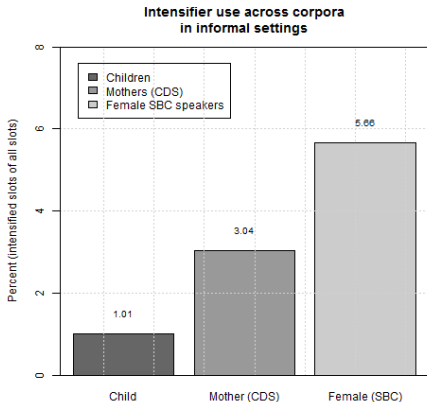


Figure: Frequency of intensification by children, in adult-to-child (CDS), and adult-to-adult conversations

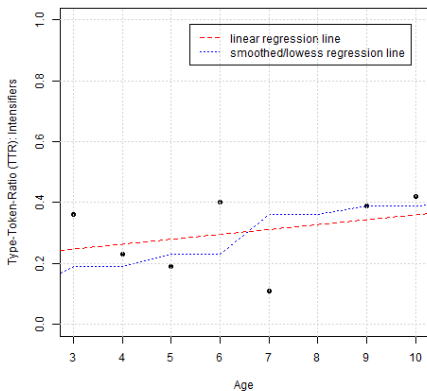


Figure: Type–Token–Ratios of Intensifiers produced by children against age of child

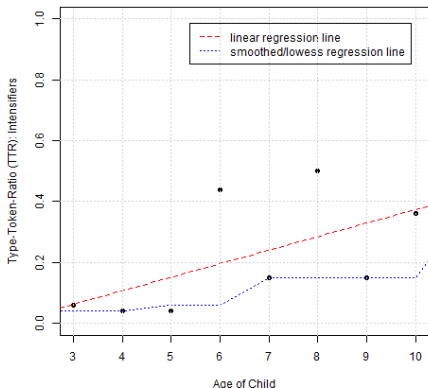


Figure: Type–Token–Ratios of Intensifiers produced by mothers against age of child

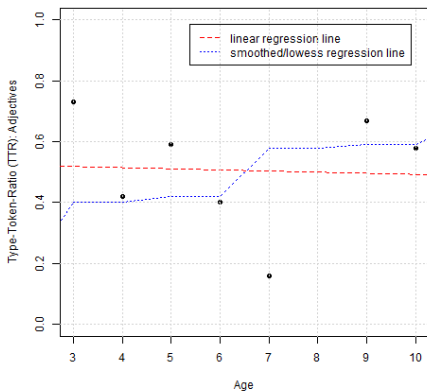


Figure: Type–Token–Ratios of intensified adjectives produced by children against age of child



## Results



	Estimate	VIF	OddsRatio	Std. Error	z value	Pr(> z )	Significance
(Intercept)	-4.01		0.02	0.33	-12.28	0	p<.001***
agecat	0.16	1.82	1.17	0.06	2.92	0.004	p<.01**
motrat	1.53	1.05	4.62	0.66	2.33	0.020	p<.05*
stypet	-2.77	1.31	0.06	0.44	-6.23	0	p<.001***
styplw	-0.51	1.73	0.6	0.3	-1.72	0.085	0.085
stypmt	-1.56	1.29	0.21	0.24	-6.64	0	p<.001***
styppt	-1.34	1.19	0.26	0.28	-4.73	0	p<.001***

Model statistics	Value
Number of cases in model	8207
Observed misses	0: 8065
Observed successes	1: 142
Null deviance	1433.69
Residual deviance	1323.02
R <sup>2</sup> (Nagelkerke)	0.084
R <sup>2</sup> (Hosmer & Lemeshow)	0.077
R <sup>2</sup> (Cox & Snell)	0.013
C	0.737
Somers' D <sub>xy</sub>	0.474
AIC	1337.02
Prediction accuracy	98.27%
Model Likelihood Ratio Test	Model L.R.: 110.67      df: 6      p<.001***



# Observing acquisition

- ▶ The increase in the frequency of intensification differs across situation types which not only shows that we are indeed observing the acquisition process of intensification but also that extra-linguistic factors contribute to the speed of the acquisition process.
- ▶ Interestingly, the rates of the increase of intensification differs which means that children acquire constructions at different rates in distinct situation types.



# Input versus output

- ▶ The results of the logistic regression model show that the likelihood of a child intensifying an attributive adjective increase with the ratio with which mothers intensify.
- ▶ The frequency of intensification of mothers correlates significantly positively with the likelihood of a child using an intensifier.
- ▶ This means that the input of the mothers correlates with the output of the children.





# Stylistic variation

- ▶ The differences in frequency of intensification between different situation types strongly suggests that children acquire extra-linguistic layering alongside linguistic constructions.
- ▶ Children “acquire language in a socially grounded fashion. On the constructional view, the item-based schemas that children acquire are . . . tied to specific situations and situation types” (Hilpert 2014: 159)



# From pivot schemas to schematic constructions

- ▶ The increase with age in the TTRs of intensifiers produced by children is fully in line with the predictions of usage-based approaches of language acquisition (e.g. Construction Grammar) (cf. Tomasello 2009)
- ▶ The lack of an increase in the TTRs of intensified adjectives by children warrants closer inspection but could be ...
  - ▶ a statistical artifact (increase in the lowest line)
  - ▶ related to how children acquire adjectives and adverbs
  - ▶ an artifact caused by a confounding factor (sit. type)



# Conclusion

- ▶ Children acquire intensifier constructions very early on.
- ▶ Children acquire extra-linguistic constraints on variation very early on
- ▶ Mothers' adapt their use of intensifier constructions in CDS (probably to enhance statistical learning)
- ▶ Construction Grammar is a very suitable framework for explaining the use of intensifier constructions during L1-acquisition



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