

The Acquisition of Narrative Competences and Theory of Mind in Deaf Children

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Hypotheses and Research Questions

The development of narrative discourse competence requires the acquisition of language as well as cognitive competences, e.g. the development of a theory of mind. Limited conversational experiences cause linguistic and cognitive difficulties, which impede probably the processing of the events to be told, and an adequate orientation towards the addressee in discourse.

- a. What kind of narrative strategies do signers adopt who have only limited conversational experiences either in signed or in spoken languages, and do these strategies differ from the ones adopted by native signers?
- b. If we find narrative differences, do they belong to the linguistic or the cognitive areas, and what kinds of interdependencies exist?
- c. Do have the cognitive competences of “theory of mind” an impact on the various areas of narrative competence, and if so, which areas are mainly affected?

Background

Development of narrative discourse competence

Narrative discourse is an interactive process, which includes three key areas of narrative competence (Hausendorf & Quasthoff, 1996):

- global structural*: to be able to perceive and to comply with forces of action in a conversation.
- global semantic*: to be able to tell all the relevant information needed by the interlocutor, to linearize the events to a coherent story, and to construct them around the climax.
- global / local formal*: to be able to handle linguistic forms to produce and to understand well-formed texts (e.g. to mark the narrative structure and to establish coherence).

Stimuli for acquisition (Tomasello 1988, Boueke et al. 1995, Hausendorf & Quasthoff 1996):

- a. interactive ressources and b. cognitive ressources.
- From age 9: fully developed narrative discourse competence.

Development of Theory of Mind (ToM)

- a. ToM is acquired in 5 steps (up to age 5/6, cf. Peterson et al. 2005):
diverse desires > diverse beliefs > knowledge access > false beliefs > hidden emotion.
- b. Different hypotheses about language and ToM-competences: ToM requires
 - a) mental lexemes (Moeller & Schick 2006),
 - b) complement structure (deVilliers & Pyers 2002),
 - c) conversational experiences (Dunn & Brophy 2005)

Methods

Participants:

14 highly hearing impaired children, aged 10 years (7 native signers, 7 non-native signers)

Narratives:

Elicitation of stories about a real live event in a conversation: two mishaps are stage-managed always in the same manner in the classrooms, the children are asked later individually by a deaf interviewer what happened. (Adaptation of DO-BINE, Quasthoff et al. 2011)

ToM-competence:

5 Tests (5-scale, cf. Peterson, Wellman & Liu 2005)

Mental lexemes:

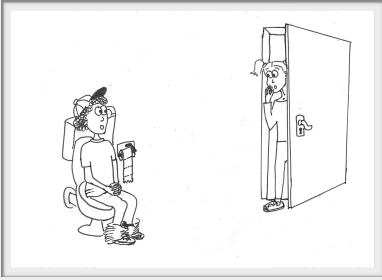
Knowledge of 11 mental lexemes in DGS or German

Complement clause syntax:

Sentence repetition test consisting of five DGS-sentences with verbs of communication, belief, or emotion and an embedded complement clause, e.g.

MUM WISH HER_{-right} CHILD SCHOOL GOOD-WORK
TEACHER TELL_{-PI} TODAY TIDY-UP

These data are part of a major study with 64 participants of five different age cohorts (5, 7, 10, 14, and 17 years old).



Tab. 1. Association between conversational experiences and linguistic competence

Group		Mean scores	Sig. (2-tailed)	Mean Difference	95 % Confid. interval	
					Lower bound	Upper bound
Complement sentences (scores)	Non-native signers	14,57	p = 0,01 ^a	7,429	2,113	12,744
	Native signers	22,00				
Mental lexemes (numbers)	Non-native signers	7,57	p = 0,021 ^a	1,571	0,288	2,855
	Native signers	9,14				

(^a comparison of means: t-test: equal variances not assumed)

Tab. 2. Association between linguistic competence and narrative competence

Poisson regression for score for narrative competence	Regression coefficient	Sig.	95 % Confidence interval	
			Lower bound	Upper bound
Mental lexemes	-,129	p < 0,01	-,068	-,190
Complement sentences (scores)	-,018	p = 0,013	-,004	-,032

Tab. 3. Association between numbers of mental lexemes and ToM-competence

Ordinal regression for achieved ToM-level	Regression coefficient	Sig.	95 % Confidence interval	
			Lower bound	Upper bound
Mental lexemes (numbers)	1,859	p < 0,01	,467	3,251

Tab. 4. Association between conversational experience and ToM-competence

Ordinal regression for achieved ToM-level	Regression coefficient	Sig.	95 % Confidence interval	
			Lower bound	Upper bound
Nat. Signers	2,872	p = 0,020	,448	5,296
Non-nat. Signers ^a	0		.	.

(^a reference group)

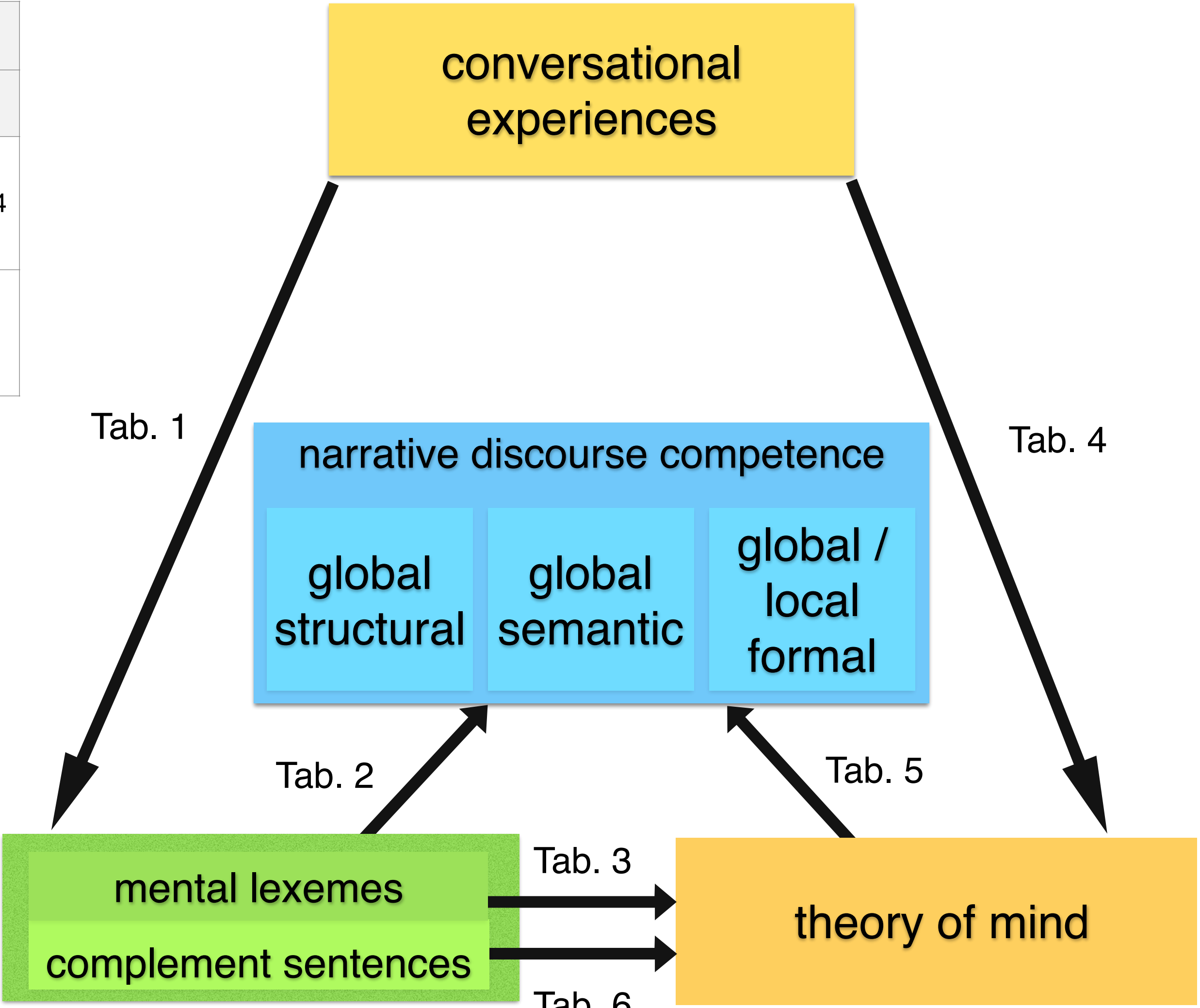
Tab. 5. Association between ToM-competence (false-belief) and narrative competence

Poisson regression for score of narrative competence		Regression coefficient	Sig.	95 % Confidence interval	
				Lower bound	Upper bound
False belief	not achieved	-,255	p < 0,01	-,383	-,066
	achieved ^a				

(^a reference group)

Tab. 6. Association between competence in complement sentences and ToM-competence

Ordinal regression for achieved ToM-level	Regression coefficient	Sig.	95 % Confidence interval	
			Lower bound	Upper bound
Complement sentences (scores)	,370	p < 0,01	,094	,645



→ = association is significant (p < 0,05)

Conclusion

1. Conversational experience cannot be the central influential factor for narrative competence, because we find in both groups (native and non-native signers) a very heterogeneous performance in all narrative key areas: in both groups, we find very good narrators, but also children who are unable to produce age appropriate narrations. Thus, we need educational support for both groups.
2. Conversational experience is associated with theory of mind-competence and linguistic abilities:
 - a. Children, who do not achieve the false-belief-level, have difficulties to adapt their narration adequately towards the needs of their addresses. They show generally less narrative discourse competence, mainly related to information structure and referencing.
 - b. Limited conversational experiences are linked to poor linguistic abilities (especially reference-tracking (local formal abilities), the knowledge of mental lexemes and complement sentence structure).
3. Language acquisition is related to the development of Theory of Mind competence. We find statistical associations with both the knowledge of mental lexemes and the mastering of complement sentence structure.

Further Information

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