

# ON THE ROLE OF TRANSITIONS IN SL OR: WHAT'S WRONG WITH THE SIGN?

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1

## Outline of the talk

- Introduction
- Signs, transitions & the characteristics of transitions
- Experiments with transitions
  - (i) Distribution of acceleration peaks in continuous signing
  - (ii) Comprehension of signing without signs
- Implications for the notion of sign
- Conclusion

2

## The sign - temporal perspective

- **Segmental phonology**  
A sequence of dynamic and static segments, prototypically containing at least one dynamic segment during which the hand produces a path movement (e.g. Liddell & Johnson 1989; Sandler 1989; Perlmutter 1992)
- **Prosodic phonology**  
Prototypically one syllable, understood generally as one dynamic phonological movement unit (e.g. Perlmutter 1992; Sandler 1993; Brentari 1998; Jantunen & Takkinen 2010)
- **Corpus linguistics**  
Prototypically a series of video frames that identifies with a semantically coherent sequence of sign stream during which the hand(s) move from the initial location of the sign to the final location of the sign, both marked by a change in the direction of the movement (e.g. Crasborn & Zwitserlood 2008; Johnston 2009; Mesch 2010)

3

## Sign identification method

- **A sign begins...**  
on the video frame that immediately precedes the frame in which the dominant hand first shows movement away from the initial location of the sign; if the sign includes only a local movement, the beginning of a sign corresponds to the frame that immediately precedes the frame in which the initial handshape or orientation of the dominant hand first starts to change
- **A sign ends...**  
at the frame immediately following the frame in which the path movement of the dominant hand has reached its end or in which the dominant hand still holds a posture or a hand configuration of the sign

4

## Transitions

- Two types of transitions (see e.g. Blondel & Miller 2001: 41-43):
  - **Sign external transitions, i.e., movements of the hand(s) that occur inbetween signs and transfer the hand(s) from the end location of one sign to the start location of the next sign**
  - Sign internal transitions, i.e., movements of the hand(s) that occur inside repeated signs and transfer the hand(s) from the end location of the first part of the sign back to the start location of the second part of the sign
- Standard theory treats transitions as **nonlinguistic, unintentional, meaningless, automatic, nonsalient, unmodifiable, holistic**, etc. (e.g. Wilbur 1990a, Perlmutter 1990, Wilcox 1992, van der Hulst 1993)

5

## Research into transitions & key findings

- **Phonetics**  
Acceleration peaks, the maximally perceivable and salient moments in the sign stream (e.g. Shaw & Cutting 1980, Wilbur 1990b, Luck & Sloboda 2008, Wolfe & al. 2008), can associate with transitions - typically with their beginnings and/or ends - making transitions the most salient moments in the sign stream (e.g. Wilbur 1990ab, Wilcox 1992, Jantunen & al. 2010)
- **Poetry**  
Transitions are modifiable, also linguistically, e.g. for the purpose of expressing emphatic stress (e.g. Blondel & Miller 2001, Sutton-Spence & Kaneko 2007; see also Wilbur 1990a)
- **Sign recognition**  
The lexical recognition point of signs is located within the pre-sign transition (e.g. Grosjean 1981, Clark & Grosjean 1982, Emmorey & Corina 1990, Arendsen, van Doorn & de Ridder 2007, ten Holt & al. 2009)

6

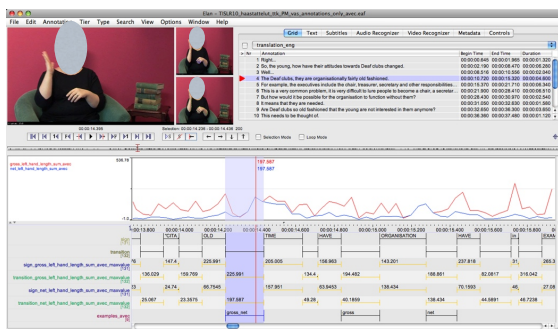
# Experiment 1 - Introduction

- The aim: to **demonstrate** the distribution of acceleration peaks in continuous signing with a new software tool developed in cooperation with the Aalto University and JyU for the purpose of visualizing and analyzing signed language motion from a digital video (Jantunen & al. 2010; see also Koskela & al. 2008)
- The basis of the tool is quantitative computer vision analysis (Tomasí & Kanade 1991)
- The tool includes four phases (see the next slide)
- Data: semi-pre-rehearsed FinSL monologue/interview; native Deaf signer; 25fps

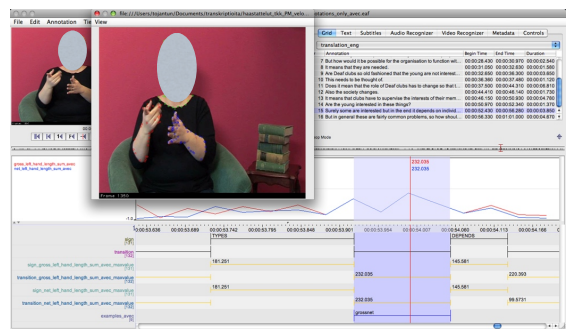
# SL Motion Analysis Tool phases



## Demonstration The distribution of acceleration peaks (dom. hand only)



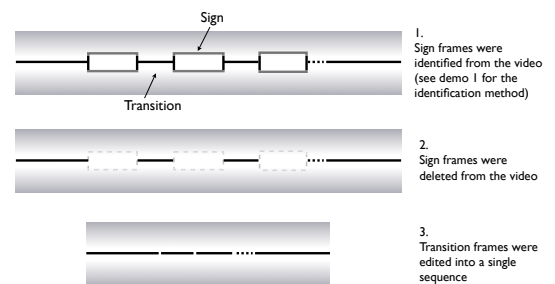
## Demonstration The distribution of acceleration peaks (dom. hand only)



# Experiment 2 - Introduction

- The aim of the experiment: to test the role the linear sign (as currently understood) has in the comprehension of linguistic meaning in continuous signing
- Question: **Can continuous signing be understood only on the basis of transitions?**
- Method: a video test in which testees were shown a series of short superficially signing-like video clips, edited to contain only transitions
- Participants & data: eight (8) native FinSL signers; five (5) randomly selected video clips from *Suvi*, the Online dictionary of FinSL
- The task: to tell whether a clip is understandable or not; if judged understandable, testees were asked to repeat the signs in the clip

## How the 'signless' video clips were created



## Results

Signer	Clip				
	a	b	c	d	e
1	Understood				Understood
2	Understood				Understood
3		Understood		Understood	
4	Understood				Understood
5	Understood	Understood		Understood	
6	Understood	Understood		Understood	Understood
7	Understood	Understood		Understood	Understood
8	Understood	Understood		Understood	Understood

Legend: ■ Understood

13

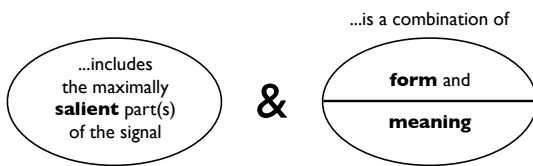
## Discussion - Implications for the sign

From the perspective of research into transitions:

1. What are the defining features of the linguistic symbol?
2. What's wrong with the sign?
3. How should we re-think the sign?

14

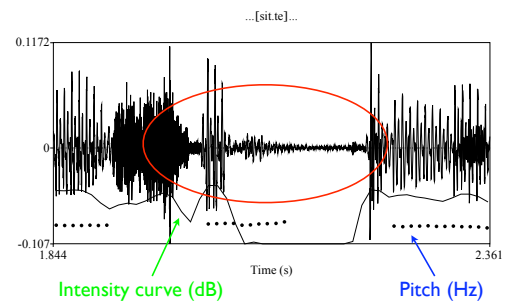
## Linguistic symbol



15

## Words & salience

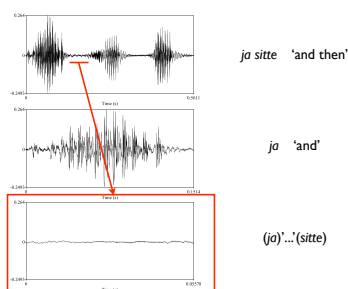
The peaks of salience in spoken signal are always word-internal (and syllable-internal)



16

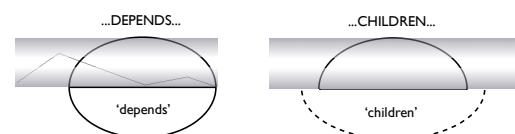
## Words & meaning

Meaning always attaches to the form of the word



17

## Signs as linguistic symbols?



18

