



## The Zurich Tangram Corpus

URPP Language and Space Lab, UZH

### 1. Background

- The corpus was designed primarily for the purpose of investigating the dynamics of accommodation in interaction.
- In particular, it aims at investigating the effect of interactional intensity on phonetic convergence, assuming that greater interactional intensity will lead to more phonetic convergence, as predicted by Pickering and Garrod (2013).
- It makes it possible to study how accommodation processes on several modes of expression are interrelated (e.g. speech and gesture).

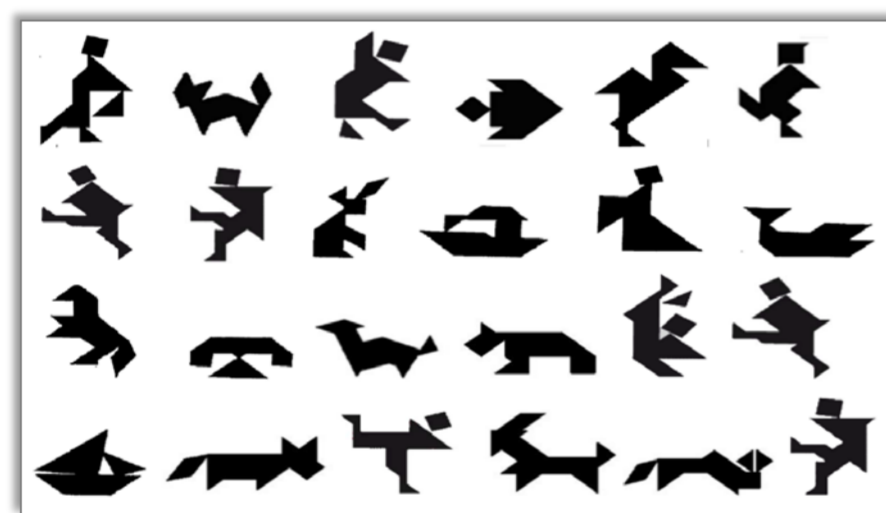
### 2. Method

#### 2.1. Subjects

- 58 native speakers of Swiss Standard German.
- Median age: 22.5y (range 18.5-30y).
- 44 females, 14 males.
- Subjects were matched to form 29 dyads of speakers unacquainted prior to the first recording.

#### 2.2. Task

- In the task (based partly on Clark/Wilkes-Gibbs 1986) the participants were required to reconstruct a matrix of 4x6 Tangram figures (**Fig.1**)
- The *instructor* was given a table with the matrix.
- The *receiver* was given matching cards.
- The subjects were given 4 tasks in each session, alternating their roles.
- 3 weekly sessions were recorded.
- The tasks were modified slightly every week to maintain interest.

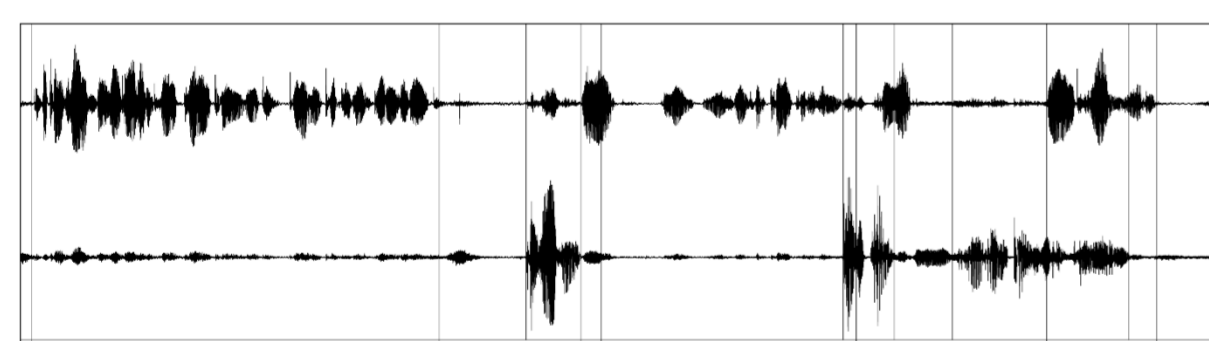


**Fig.1:** Example of a matrix with 4x6 Tangram figures.

#### 2.3. Recordings

Quiet but natural environment

- Total of 87 recordings (3x29, mean duration: 33min, range: 22-53min)
- Subjects were sat facing each other (**Fig.3**)
- Audio recordings using a portable recorder and two external omnidirectional lavalier microphones (one channel per speaker), leading to very good segregation of the speakers' channels (**Fig.2**)
- Video data for 28 dyads, eye-tracking data for 2 dyads



**Fig.2:** Excellent segregation of the speakers' channels

#### 2.4. Set-up



**Fig.3:** The participants in each dyad were sat facing each other. In the photos brought here the participants on the left is in the role of the instructor and the one on the right is the receiver. The upper photos show recordings using eye trackers.

### References

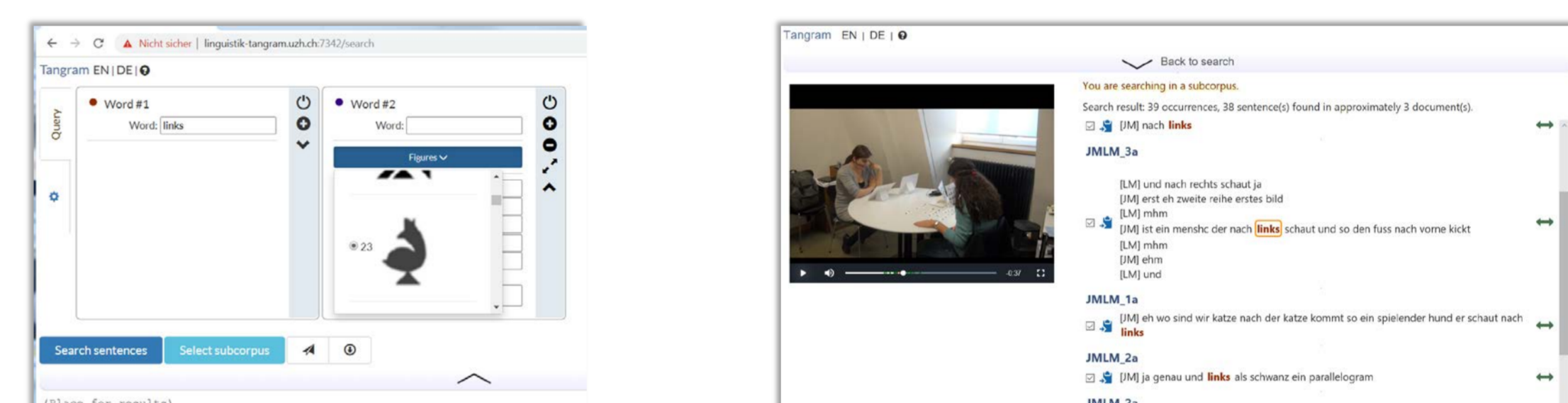
Clark, H. H. & Wilkes-Gibbs, D. (1986). "Referring as a collaborative process." *Cognition*, 22(1), 1-39.  
Pickering, M. J. & Garrod, S. (2013). An integrated theory of language production and comprehension. *Behavioral and Brain Sciences*, 36(04), 329-347.

### 3. Annotation and publication

- Orthographic transcription for each speaker
- Phonetic segmentation
- Segmentation at the beginning and the end of each meaningful contribution to allow extracting components and measurements of interactional intensity
- Metadata about the age, origin, linguistic background and evaluation of the enjoyability and difficulty of tasks
- The ZTC is being published in summer 2019 as part of the new Linguistic Research Infrastructure "LiRI" at the University of Zurich

### 4. Web interface

- Online query, no download/installation
- Multimodal data retrieval and analysis: Audio, video, annotations, Tangram figures (**Fig.4**)
- Search in sub-corpora (e.g. dyads, sessions, tasks, etc.)



**Fig.4:** Screenshots of web interface

### 5. Research possibilities

- Accommodation on all levels of linguistic description: phonetics, lexicon, syntax, discourse structure, non-verbal modes such as gestures, manipulation of objects, etc.
- Common ground and reference strategies
- Uncertainty expressed by speakers

### 6. People, funding and collaborators

#### 7. Data collection and annotation:

- Y. Kalmanovitch, W. Kesselheim; J. Wanner
- Funding: Doctoral Program Linguistics (DPL), URPP Language and Space

#### • Lighthouse project for LiRI: **UZH Digital Society Initiative Grant**

- E. Stark, W. Kesselheim, T. Samardzic
- Goal: implementing a location-independent collaboration tool for multimodal corpora (review of existing solutions: M. Luseti; development of web-based interface: O. Sozinova, see 3.)
- Funding: Digital Society Initiative (2018-19), ZüKL, and URPP Language and Space

#### • Research collaboration:

- I. Hübscher (Postdoc, FFG Interactional Spaces): gestures, uncertainty;
- FFG Accommodation and Social Categorization: accommodation phenomena;
- Bayerisches Archiv für Sprachsignale (C. Draxler): automatic phonetic segmentation