

Word-learning in 14-month-old Swedish-learning infants

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Introduction

Word-learning (here): Audiovisual mapping between a word and an image or an object.

While studies using the switch task procedure (STP) have shown word learning in 13- to 14-month-olds (Werker et al., 1998), studies using the preferential looking paradigm (PLP) have shown word learning in 15-month old infants (Houston et al., 2012), but neither in 14-month-olds (Foursha-Stevenson et al., 2017) nor in 12-month-olds (Houston et al., 2012).

- STP - detect a mismatch between an object and a label
- PLP - identify the correct object out of two possible options, from a label

Can PLP capture word-learning at younger ages, or are the task demands in PLP too challenging?

We tested this using a simplified version of the traditional preferential looking paradigm (PLP). The conditions were infant-directed speech (IDS) and adult-directed speech (ADS), as infants learn words better in IDS (e.g., Ma et al., 2011).

Participants and Experimental setup:

51 Swedish-learning 14-month-olds were presented with audiovisual stimuli, counterbalanced to either IDS or ADS.

Looking behaviour was recorded and later coded offline.

- Introduction
- Familiarization
- Pre-test
- Baseline
- Training
- Test
- Post-test



Pre-test phase

Pre-test phase with familiar objects

Phase	Auditory stimuli	Visual stimuli	Description
Pre-test	"Where is the nice <u>ball</u> ?" etc.		Two familiar objects One familiar word
	"Can you see the cute <u>ball</u> ?" etc.		Two familiar objects One familiar word

Simplified Preferential Looking Paradigm

Only 1 word-object pairing instead of 2-4 pairings in traditional PLP

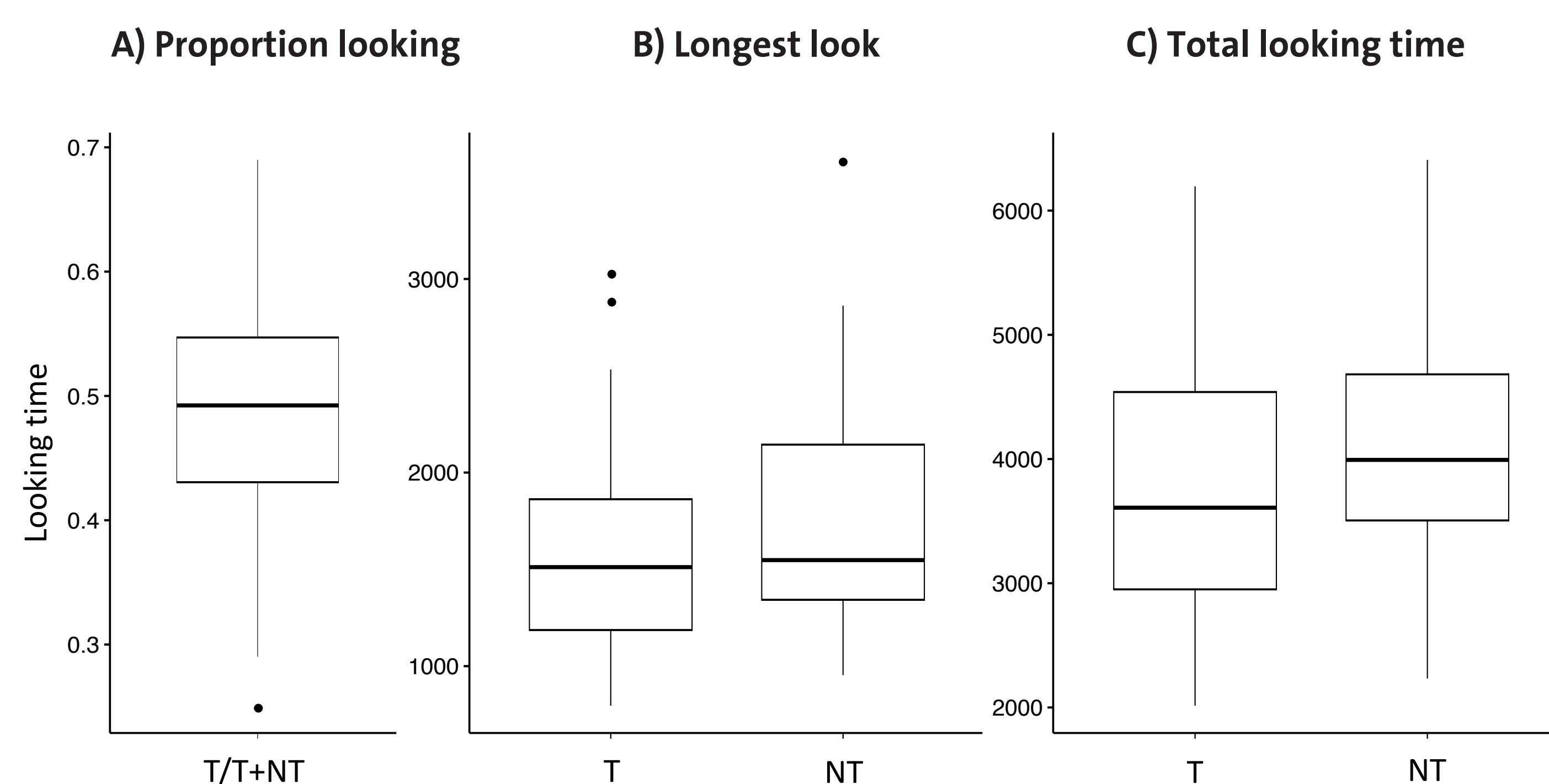
Phase	Auditory stimuli	Visual stimuli	Description
Training	" <u>Modi</u> is so cute and pretty" etc.		Target object Target word
	"Look at this cute one here" etc.		Non-target object Non-labeling phrases
The two training trials are repeated 3 times			
Test	"Where is the nice <u>modi</u> ?" etc.		Target + Non-target object Target word
	"Can you see the cute <u>modi</u> ?" etc.		Non-target + Target object Target word
The two test trials are repeated 2 times			

Measures showing familiar word recognition in pre-test phase:

- A) Proportion looking to target (T) during entire trial (target/target+non-target (NT))
Foursha-Stevenson et al., 2017
- B) Longest look towards T compared to NT
Houston et al., 2012 and Ma et al., 2011
- C) Total looking time towards T compared to NT during the entire trial
Rajan et al., 2019

Target looking in test phase

Same measures as in the pre-test phase, IDS+ADS combined



Results

No word-learning established in either the IDS or in the ADS condition. The data was checked for object preference, labelling effect, fatigue effect, and attention.

Reducing task demands to only one word-object pairing is not sufficient to induce successful word-learning in 14-month-olds.

Discussion

We know that 14-month-olds can learn words. They learn words in IDS within the STP (Werker et al., 1998).

How can we capture word learning with PLP?

STP is based on habituation ==> longer training comp to PLP. Increase training time?

Word learning in PLP in 15-month old infants (Houston et al., 2012). Replicate this study with (simplified?) PLP?

References

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Stockholm BabyLab

We study language development in infants in several different research projects and participate in international research collaboration. Most of our studies are conducted at the Phonetics Laboratory, Stockholm University, in labs designed to create a comfortable environment for children and parents participating in our studies.

