CAN INTRANSITIVE CLAUSES NAME 2-PARTICIPANT EVENTS? A NEW TEST OF PARTICIPANT-TO-ARGUMENT MATCHING IN VERB LEARNING

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On one verb-learning hypothesis, children expect the number of participants in an event to match one-to-one the number of arguments of a verb describing that event (Participant-to-Argument Matching, PAM) [1-3]. However, previous studies have found inconclusive evidence for PAM with intransitive sentences [3, 4]. The current study provides an improved test for PAM: we (i) introduce a new method to test the fit between a sentence and a scene, (ii) ensure that presented sentences are parsed as intransitive, and (iii) ensure that presented events are perceived with 2 participants. We preliminarily find that children do not consider an intransitive sentence to be a good fit for a 2-participant event, a result consistent with PAM for intransitives.

In previous preferential looking studies, children who hear a novel transitive verb are more likely to look at an event intended to be viewed with 2 participants rather than 1 [1, 3], but children who hear a novel intransitive verb do not reliably show above-chance looking times to an event intended to be viewed with 1 participant rather than 2 [3, 4]. There are several potential reasons for the inconclusive results with intransitives. Children may not perceive the presented sentence as intransitive [3, 5], or children may not perceive the event with the intended number of participants—an event intended to be viewed as one person pushing another might also be viewed as two people playing [6, 7]. Furthermore, the preferential looking task measures which interpretations of a sentence children prefer, rather than which interpretations they have available, which makes it difficult to differentiate PAM from a weaker strategy. Children might only expect that each Argument Names a Participant (ANP), but not that every participant necessarily corresponds to an argument [8]. This weaker heuristic would still be consistent with the previous results. In order to differentiate PAM from ANP, a new method is necessary.

To this end we introduce a Violations of Expectations task [9]. This task measures how well a scene and a sentence fit together, rather than which of two scenes children prefer. We familiarize children with a 2-participant event with uninformative audio, and then measure how much a transitive or intransitive sentence violates children's expectations after viewing this event. PAM predicts that children will be surprised to hear a 2-participant event labelled by an intransitive sentence, whereas ANP does not. To be confident that children perceive our intransitive sentences as intransitive, we use simple pronominal subjects [3]. To be confident that children perceive our videos under a 2-participant event concept, we present brief events in which a human actor effects a sudden change in an inanimate patient: a woman tearing a piece of paper in half, or knocking over a tower of toys. A norming study with adults supported our assumption that these videos are likely to be perceived with 2 participants, not 1.

The current study tests 19- to 22-month-old children in a 2x2 design, with event (TEAR or KNOCK OVER) as a within-subjects factor and clause type (transitive or intransitive) as a between-subjects factor. Pairing of event and novel verb (*blick* and *gorp*), as well as order, are counterbalanced across participants. During familiarization, children see 4 trials each consisting of a 5.4-second event repeated up to 5 times, accompanied by uninformative audio. If a child looks away for more than 2 seconds, the trial is stopped and the next trial begins. During the test phase, each child sees 2 trials with the same video stimuli, but different audio: each child hears either transitive or intransitive sentences with a novel verb. The dependent variable is looking time during the test phase. See Figure 1 for a diagram of the experimental set-up.

Data collection is currently underway. Figure 2 reports preliminary mean looking times during the last familiarization trial and first test trial collapsed across both events, for a current sample of 17 participants out of 32 in our expected final sample. At this stage we find no difference

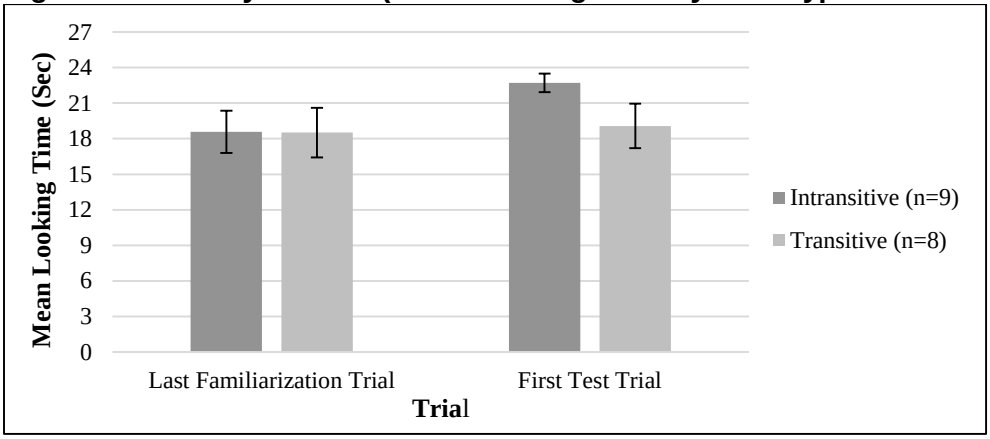
between conditions during familiarization, but during the first test trial we find longer looking time in the intransitive condition compared to the transitive condition, trending towards a significant difference (p = 0.10, t = 1.80). We take this as a preliminary indication that children are initially surprised to hear intransitive sentences label 2-participant events.

These preliminary results are consistent with PAM and inconsistent with the weaker ANP: children expect the 2-participant events in our stimuli to be described with a transitive, and find an intransitive to be a poor fit. If this trend continues in the expected direction, it will provide new evidence that children use a learning strategy stronger than ANP, at least for 2-participant events of the sort we tested here. Further investigation is needed to determine whether this strategy is PAM. Because PAM says that participants must match arguments for any number, we aim in a concurrent project to test this prediction by pitting 3-participant events against transitive sentences. The task introduced in the current study may provide an improved method for future research to differentiate PAM from weaker possible strategies in verb learning.

Fig. 1: Experimental Set-Up (1 of 2 Videos)

	Video	***Audio***	
		Intransitive Condition	Transitive Condition
Familiarization (4 trials)	girl tears paper	*Hey, wow! Do you see that?*	
Test (2 trials)	girl tears paper	*She's gonna blick! She just blicked!*	*She's gonna blick it! She just blicked it!*

Fig. 2: Preliminary Results (Mean Looking Time by Trial Type and Condition)



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