

# Getting a grip on infants’ event representations: participant number in TAKE and PICK-UP

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Events of taking are related to a taker, something taken, a location, a manner of taking, and so on. But presumably when we represent an event as a taking not all of these relationships are equally salient. This is perhaps suggested by the fact that only some of them are expressed as arguments of the verb *take*. Building on this intuition, we show that number of participants plays a particularly important role in infants’ event perception and categorization. Specifically, 10-month-olds differentiate 3-participant TAKING from perceptually similar 2-participant PICKING-UP and respond to this conceptual change more than a visually salient manner of motion change.

Gordon (2003) showed that 10-month-olds are surprised when the gift is removed from givings, but not when the same object is removed from huggings. This suggests that infants represent that giving video – but not the hugging video – under a concept that entails something given. Wellwood et al. (2015) provide evidence that some roles entailed by the concept under which children view a scene are moreover psychologically foregrounded. They found that infants are surprised when a girl switches from opening a box with a lever to opening it with her hand, but not when she switches from opening it from the left side to opening it from the right side, despite the perceptual salience of this change. The instrument role is thus more psychologically potent than direction of opening, suggesting that it holds a privileged status.

Here we extend this line of work to other event concepts, namely TAKE and PICK-UP. In a habituation-switch paradigm (Werker et al., 1998), 32 infants aged 9;21 to 12;15 (mean=10;23) were first shown various silent videos of a girl picking up a truck in a rainbow-motion while a boy looks on (Fig 1). Once they habituated, they were tested on one of two conditions. The “manner” group saw the girl slide the truck toward herself instead of moving it in an arc. The “participant” group saw her pick it up in the same rainbow-motion, but with the boy – now a participant – gripping it.

We hypothesized that infants would represent the first video under a PICK-UP concept but that the same motion would no longer count as a picking-up once the boy was added as a participant. Rather, it would be viewed under a TAKE concept. We predicted that this conceptual distinction would thus lead to greater dishabituation than the perceptual distinction (rainbow vs. slide), which doesn’t alter the participant structure of the concept. These predictions were borne out (Fig 2) as we observe a significant interaction between phase and condition ( $F_{(4,30)} = 5.42, p < .03$ ).

Aside from shedding light on infants’ event representations, these findings have potential implications for language acquisition. Knowing which roles are privileged in infants’ TAKE concept is a necessary first step in understanding how they learn the relation between this concept and the verb *take*. If infants’ TAKE concept privileges the taken-from role, theories of syntactic bootstrapping advocating one-to-one role-argument mapping (e.g., Fisher et al., 2017) face a potential challenge: take is often used in clauses that don’t mention that role at all (e.g., “she took the truck”).

