

The overimitation effect: mechanism and constraints of object usage convention.

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We conducted our study to enrich the idea of overimitation mechanism. The overimitation effect is specifically human way of children behavior when adult intentionally demonstrate irrelevant actions with a new object. Children imitate them although they don't make such actions without adult's demonstration. We supposed, that children perceive adult's demonstration like an invitation to a convention for using this object, and decided to explore the limits of such convention. Our interest covered two spheres: the joint activity and the natural causality. We find that children keep up such convention during the object is in the focus of joint attention, and children are guided by perceptive characteristics of object in the course of such convention generalizing.

The **overimitation effect** is an extensively studied phenomenon (Nagell, Olguin & Tomasello, 1993; Call, Carpenter, Tomasello, 2005; Carpenter, Call, Tomasello, 2002; Horner, Whiten, 2005; Whiten, 2005; Whiten, Custance, Gomez, Texidor, Bard, 1996). It is usually discussed in the frame of comparison of human and animal behavior in imitation tasks. If an adult demonstrates some actions with a new object (see Figure 1), children often imitate not only effective adult's activities (what is an understandable reaction), but **inefficient actions** too. It could be explained by their inability to distinguish effective and ineffective actions, but Lyons et al. (2007) demonstrated that when children hadn't seen **adult's example**, they didn't accomplish inefficient actions with the same object.

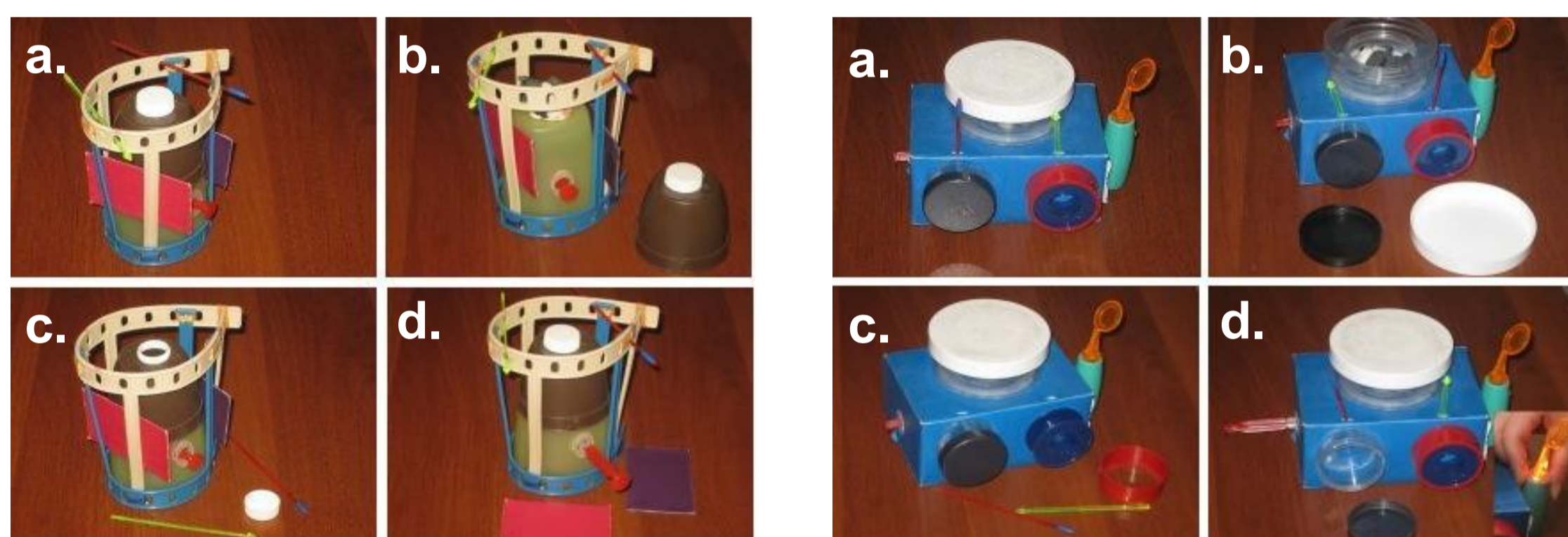


Figure 1. Examples of experimental objects (a), relevant (b) and irrelevant (c, d) actions.

Our previous study showed that preschoolers' decline in imitation of ineffective adult's actions varies depending on **experience demonstration in adult's behavior** (Kotova, Preobrajenskaya, 2008).

| Group | Average number of irrelevant actions (arranged between 0 and 3) M | Mode of irrelevant actions (Mo) | Part of subjects (%) who executed | | | |
|-----------------------|---|---------------------------------|-----------------------------------|-----------------------|------------------------|--------------------------|
| | | | None irrelevant actions | One irrelevant action | Two irrelevant actions | Three irrelevant actions |
| Pedagogical intention | 2.61 | 3 | 5.6 | 0 | 11.1 | 83.3 |
| Exploratory intention | 1.63 | 1 | 0 | 57.1 | 21.4 | 21.4 |

Table 1: Amount of irrelevant actions in groups with different intention.

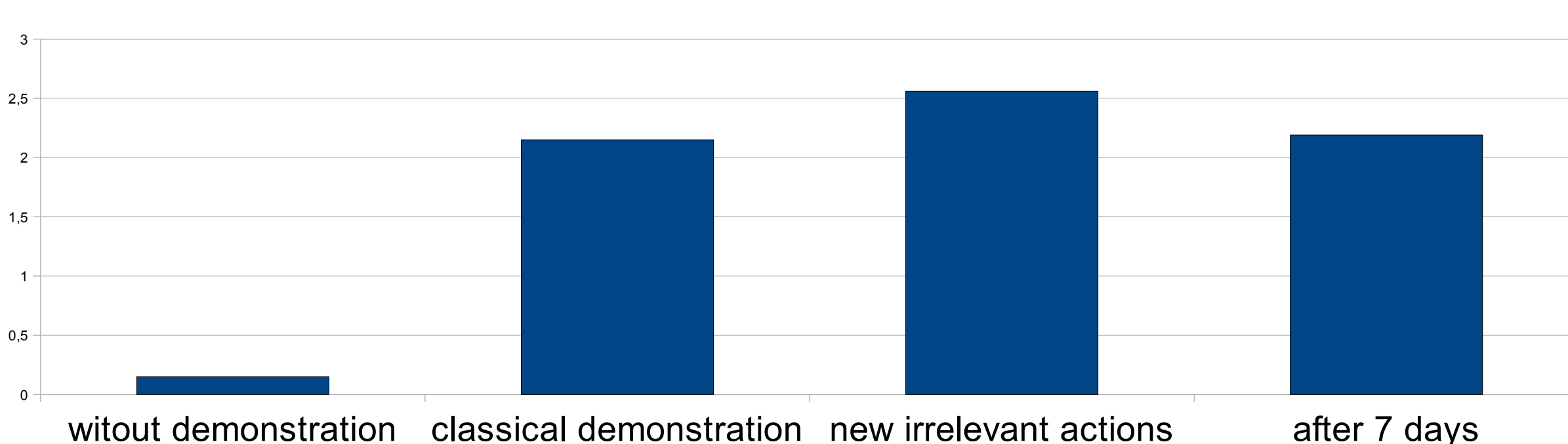
Children didn't overimitate when an adult manipulated with an object as like she had not seen it yet. But they overimitated when an adult manipulated with an object with confidence. This fact was really unexpected because other «**social**» variations did not influence this effect. For example, children overimitated adult's actions even when an adult had said that his actions were "silly" and redundant and when the experimenter pretended to be in a hurry and asked the child to check if his assistant had put the toy back into the object (Lyons et al., 2007).

Some social factors (verbal instructions not to imitate ineffective actions, preliminary discussion about action effectiveness, change of situation demands) aren't relevant for this effect, and some other factors are relevant (adult's demonstration, age of the demonstrator, non-video demonstration, experience demonstration in adult's behavior (Kotova, Preobrajenskaya, 2008)). It appears that real adult's behavior, but not its verbal support, is determinant for children behavior.

To explore the determination role of adult's behavior and its inner logic, we should change this behavior itself. That is vary irrelevant actions with the same object.

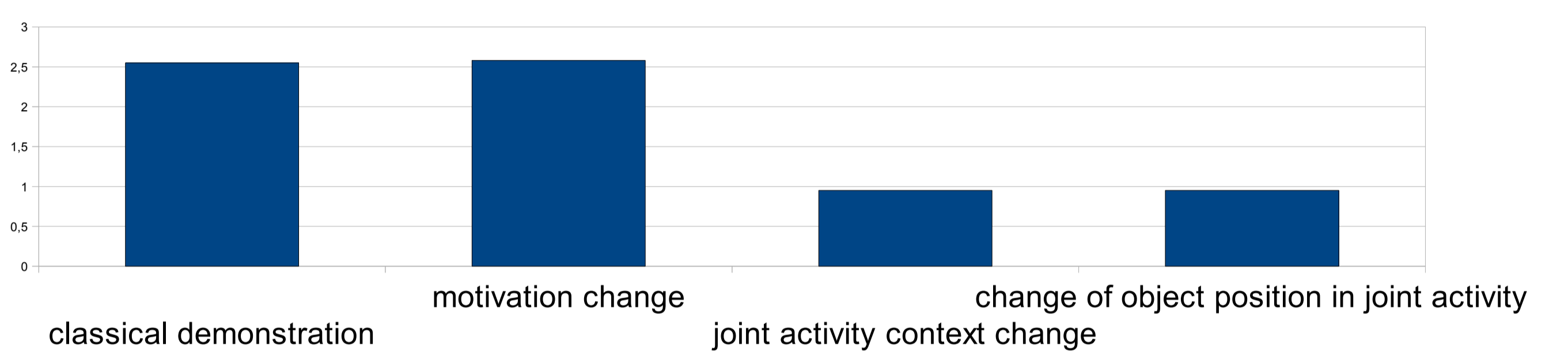
So we decided to demonstrate an unfamiliar object to every subject with **two different irrelevant actions sets twice with a time interval between them**. Children overimitated irrelevant action set even after its change. Our results could be explained by children's memory characteristics. But we found that children remembered adults actions through 7-days interval.

Diagram 1. Average amount of irrelevant action in different demonstration condition.



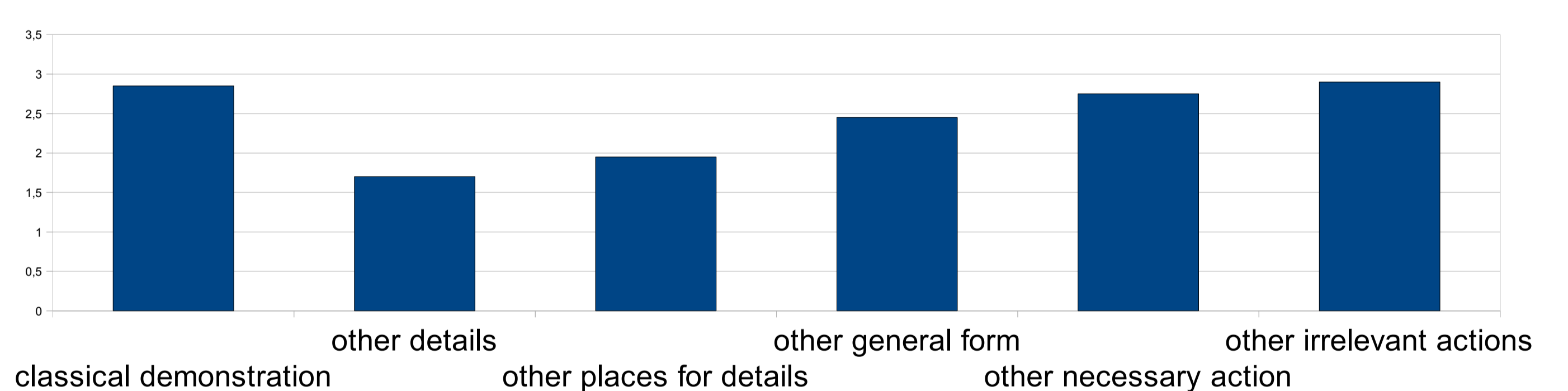
We supposed, that children perceive adult's demonstration like an invitation to a convention for using this object, and decided to explore other **limits of such convention**. General idea of our experiments was to change the situation with some respect after classical demonstration, and to compare the amount of irrelevant actions after classical demonstration and the amount of irrelevant action in changed situation. At first our interest was turned to the **joint activity**. We have seen, that children performed irrelevant actions in a competition (motivation change). But they leaved irrelevant actions out when experimenter interrupted the new activity and asked children to check the toy in the object (joint activity context change), and when children looked for the toy during the new play activity (change of object position in joint activity).

Diagram 2. Average amount of irrelevant action in different demonstration condition.



Next study was devoted to **natural causal limits**. It was necessary to investigate, on what natural causal laws are such conventions based. That is why we gave children changed objects after classical demonstration. Our subjects leaved irrelevant actions out at the objects with other details (permitting the same irrelevant actions), with other places for the details and with other general forms. But children performed irrelevant actions at the objects with changed relevant actions and at the objects with other probabilities for irrelevant actions with the same details. So they generalized the objects with different functional relations in their constructions, and didn't generalize objects with different perceptive characteristics.

Diagram 3. Average amount of irrelevant action in different demonstration condition.



Thus we suppose that after adult's demonstration children make conclusions about the rules for this object, but these rules include an object user. First of all they include user's intention for object. Such rules are **not rules of object's functioning, and they are not rules of adult-child convention**. They are **rules of convention about object's functioning**.

We presume that it is a description of a specifically cultural attitude to a new object. Children unconsciously concede that these "irrelevant" actions are relevant to some purpose, important when dealing with the object.

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