

<i>Dimension</i>	<i>Dimension description</i>	<i>Category systems</i>	<i>Category code</i>	<i>Description</i>	<i>Example</i>
Actor	Person who acts.	Child	ch	The toddler performing the action.	The child catches a ball and puts it in a box.
		Adult	a	The person who accompanies and reinforces the toddler.	The adult says to the child: “ <i>Very good</i> ”.
Moment of the activity	Phase of the activity; the point, period, or step in the process or flow of the infant’s action.	Initial state	i	First action performed by the child at the beginning of the session.	To start the session, the child catches a ball.
		Process	p	Action performed by the child during the session, i.e., between the first action and the final action in that session.	During the course of the session, the child catches the red ball and puts it in the red box.
		Stoppage	st	The child stops the flow of their action for at least 15 seconds.	During the session, and after the child has done some actions, they stop for 20 seconds.
		Restart	r	First action performed by the child after stopping their action.	After stopping the action for 25 seconds, the child catches a ball.
		Appropriate final state	afs	The session ends because the child has successfully solved the task; that is, they have performed a one-to-one correspondence logical action according to the size of the balls and boxes, and this association between the object has lasted over time. Completion implies that: a) all balls are in the size correspondent boxes as a result of the individual associations between each ball and each box; b) the four ball-box associations are made sequentially (one after the other); c) these associations are lasting: each ball must remain inside the box of its same size.	In task 1, the child puts the green ball (the largest ball) into the green box (the largest box). They put the blue ball (large) in the blue box (equally as large). They put the yellow ball (medium size) in the yellow box (medium size). They put the red ball (small) in the red box (the small). The child leaves the room.
		Inappropriate final state	ifs	When the session ends, there is no stable result or, if there is a stable result, it is not produced by the execution of a one-to-one correspondence logical action according to the size of the objects (that is, although there is a stable result, it has not been produced by incidental and sequential associations between each ball and the box of the same size).	In task 1, the child puts the green ball (the largest ball) on the red box (the smallest box). They put the yellow box (medium size) inside the green box (the biggest box). The child leaves the room.
Logic content	It indicates the level of children’s logic skills; i.e., it shows the children’s ability to understand, develop, organize, and internalize information. This dimension allows for	Grouping	g	Combination of objects according to their disparity; i.e. grouping of objects from different sets. It involves grouping ball and boxes. Grouping can be in a box or not.	The child puts the yellow ball inside the green box. They take the red box and put it inside the green box. They take the blue ball and put it in the green box. (Therefore, they group 2 balls and 2 boxes together)
		Collection	cl	Grouping of objects according to similarities; i.e., grouping of objects of the same sets. It involves the grouping of balls or grouping of boxes.	The green box is the floor. The child takes the blue box and puts it next to the green box. They take the red box and bring it closer to the green box. Finally, they take the yellow box and bring it closer to the other three boxes.
		Container-content composition of a set	cc1	Coupling of 2 objects from the same set by putting one in another (inside) or putting one on the other (over). It is only possible to couple 2 boxes. It involves putting one smaller box in a bigger one or putting one bigger box on a different smaller one.	The child puts the yellow box inside the green box.
		Container-content composition of	cc2	Coupling of 2 objects from different sets: one ball and one box. It implies putting one ball in a box (inside) or putting one ball on one box (over, when the ball is bigger than the box).	The child takes the green ball and puts it in the green box.

	discovery into the development of the one-to-one correspondence: what actions the child performs with the objects until achieving the one-to-one correspondence (here they are organized starting from the most basic: grouping).	two sets			
		One-to-various distribution	1vd	One object from one set is sequentially associated with various objects from the other set. It involves one ball being sequentially associated with various boxes.	In task 1, the child puts the green ball on the red box. Then, they remove the ball from the box and put it on the yellow box. Again, they remove the ball from the yellow box and put it in the green box.
		One-to-one distribution	11d	More than one object (but not all) from one set is individually and sequentially associated with one different object from the other set. It involves 2 or 3 balls being individually and sequentially associated with 2 or 3 boxes. Each ball is only associated with one box, but the 2 or 3 different ball-box associations are made consecutively.	In task 1, the child takes the green ball and puts it in the green box. They take the blue ball and put it in the blue box. They take the yellow ball and put it in the yellow box.
		One-to-one correspondence	c	All the objects in one set are individually and sequentially associated with one different object from the other set, all producing a lasting result. It involves: a) each of the 4 balls being individually associated with one different box; b) the 4 ball-box associations are sequentially made (one after the other); c) these 4 associations produce a lasting result: each ball must remain in its box. A successful result is achieved when associations are made with objects of the same size.	In task 1, the child takes the green ball and puts it in the green box. They take the blue ball and put it in the blue box. They take the yellow ball and put it in the yellow box. They take the red ball and put it in the red box. (All balls remain in their boxes).
Result	Outcome, product of the child action.	Stable result	sr	The outcome of the action is tangible and lasting.	In task 1, the child puts the red ball in the green box. They put the blue ball into the yellow box. They put the green ball on the red box. (Each ball stays with the box).
		Unstable result	ur	The outcome of the action is neither tangible nor lasting. It is temporary, passing, and short-lived.	In task 1, the child puts the yellow ball in the green box. They immediately take it out and put it in the blue box. They immediately take it out and throw it away.
		No result	nr	The action does not produce any outcome.	In task 1, the child tries to put the green ball (the largest) into the red box (the smallest), but without releasing the ball from their hand. Since they cannot get the large ball into the small box, they throw the ball to the floor.
Adaptation	Congruence, or not, between the size and/or color of the balls and boxes matched. Depending on the task (specifically, depending on the characteristic of the balls and boxes in each of the tasks), the possible	Adaptation to size and color	asac	All the inter-associated objects concur with another in size and color; i.e., all the balls are in the boxes which correspond with its size and color. This is only possible in task 1 given the characteristics of the balls and boxes.	In task 1, the child puts the largest ball (green) into the largest box (green). They put the large ball (blue) in the large box (blue). They put the medium ball (yellow) in the medium box (yellow). They put the small ball (red) in the small box (red).
		Non-adaptation to either size or color	nsnc	At least one object associated with another object from the other set is different in size and color. It involves at least one ball being matched with a box of unequal size and color. This is possible in task 1 and task 3 but not in task 2 given there is no color).	In task 1, the child puts the small red ball in medium yellow box
		Adaptation to size	as	All the inter-associated objects concur with one another in size; i.e., all the balls are in the boxes which correspond in size. This is only possible in task 2 given the characteristics of the balls and boxes (because it is the only task with objects without color).	In task 2, the child puts the small ball in the small box. They put the medium ball in the medium box.
		Non-adaptation to size	ns	At least one object is associated with another object in the other set with a different size. This implies that at least one ball is matched	In task 2, the child puts the largest ball on top of the small box. They put the small ball in the largest box.

	categories to code vary. The possible categories to be applied in task 3 allow the evaluation of suppression interference.			with a box with a different size. This is only possible in task 2 given the characteristics of the balls and boxes (because it is the only task with objects without color).	
		Adaptation to size but not color	asnc	All the inter-associated objects concur with one another in size but not in color; i.e., all the balls are in the boxes which are of the same size but are not the same color. This is only possible in task 3 given the characteristics of the balls and boxes. It involves an interference suppression process.	In task 3, the child puts the largest ball (blue) into the largest box (green). They put the large ball (yellow) in the large box (blue). They put the medium ball (red) in the medium box (yellow). They put the small ball (green) in the small box (red).
		Adaptation to color but not size	acns	All the inter-associated objects concur with one another in color but not in size; i.e., all the balls are associated with a box of the same color but not according to size. This is only possible in task 3 given the characteristics of the balls and boxes. It involves an interference suppression error.	In task 3, the child puts the green ball (small) into the green box (the largest). They put the red ball (the largest) into the red box (small).
Adult participation	The adult acts. Given that the role of this adult is to support the toddler without directing or disturbing their flow of play, the adult only participates if the child themselves requests it or if they stop the flow of play.	Proposal of an object	prob	The adult offers one object or various objects to the child.	The child has stopped playing. The adult takes the green ball and offers it to the child.
		Proposal of an action	prac	The adult performs an action (which could be accompanied by a verbal description).	The child has stopped playing. The adult tells the child, " <i>Watch me put the ball in his box,</i> " as the adult takes the red ball and puts it in the red box.
		Reinforcement of the child's activity	rf	The adult physically (e.g. clapping) and/or verbally (e.g. verbally animating) supports the child's action.	The child, in task 1, puts the red ball in the red box. The adult says, " <i>Inside, very good,</i> " and applauds.
Child's response to the adult's proposal	Level in which the child regards the adult's proposal; i.e., if the child takes into account the adult's proposal or not.	Ignores	ig	The child disregards the adult's proposal. The adult's action has no effect on the child's activity.	The child has stopped playing. The adult says, " <i>Look</i> ". Then, the adult takes the blue ball and puts it in the blue box. The child does nothing.
		Considers	csd	The child takes into consideration the adult's proposal, which facilitates (to a greater or lesser degree) the child's action.	The child has stopped playing. The adult says, " <i>Look</i> ". Then the adult takes the blue ball and puts it in the blue box. Then, the child takes the red ball and puts it in the red box. The child takes the yellow box and puts the yellow ball inside.

Figure S1: Observation Instrument.