



**STUDY OF COMMUNICATION BEHAVIOUR IN CHILDREN:  
AFFILIATIVE AND AGONISTIC EXCHANGES  
IN TODDLER - PEER INTERACTION .**

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## SUMMARY

The development of children's participation in peer interaction was examined longitudinally: 30 children from 16 to 30 months of age were observed. They were videotaped in a day care center during the feeding situation in groups of 5 or 6 familiar peers. The results show that the affiliative interactions and the initiating contact with peers increased significantly from 25-30 months of age when compared to the periods extending from 16-18 months and from 19-24 months. The frequency of affiliative interactions was significantly higher than the frequency of agonistic interactions over the period of this study (16 to 30 months). Most of the affiliative interactions were dyadic from 16 to 30 months, but the frequency of polyadic interaction increased significantly from the age of 19 months. These data indicated that at about 19 months of age boys and girls presented differences in some aspects of their interactions.

## INTRODUCTION

Recently the study of young children's social behaviour has received a great deal of attention and the ethological approach of behaviour studies has been fruitful. The importance of peer interaction for the development of children's social skills has been emphasized (e.g. Hartup, 1976; Lewis, Young, Brook & Michalson, 1975). However, an important developmental period has been relatively neglected: the period of transition from infancy to childhood (Sroufe, in Bronson, 1981). Moreover, little is known about the developmental changes in peer communication and mutual exchanges during the first 3 years of life in a natural setting and about the nature of polyadic interaction when 3 or more peers are simultaneously engaged in a common exchange (Kontar & Soussignan, 1987).

In the study of child behaviour, an important role has been attributed to mother-child interaction in the development of social skills with peers; it can interfere with the exploration activities of the young child, his reaction in relation to a stranger and his skill in a peer group (Ainsworth, Bell & Stayton, 1972; Matas, Armed & Sroufe, 1987; Sroufe & Waters; 1977). Recently mother-infant interaction was viewed as a bidirectional model (Freedman, 1974; Osofsky, 1976; Thomas & Chess, 1977). According to Osofsky & Conner (1979) it is important to conceptualize how the mother affects the child and the child influences the mother through a reciprocal process. Moreover, Vandell (1979) and Mueller (1979) suggest that toddlers who develop long interaction with their peers early in playgroup experience have later long interactions with their own mothers. Peer interaction may have a facilitating effect on the toddler's social skills with his/her parents.

Results from various studies indicate that very early the young child develops a series of behaviours which enables him/her to communicate with peers. This social interaction is an appropriate opportunity for the development of communication systems, reciprocal exchanges and the

apprenticeship of social roles (Hartup, 1975; Mueller & Lucas, 1975; Schaffer, 1984; Le Camus 1985).

Vinze (1971) observed that after the age of 7 months children are ready for social contact: the exchange glances with peers more and more frequently and mutual smiling and laughing can be observed at this age. Before walking serious conflicts do not occur. Contrary to Bridges (1933) and Moudray & Nekula (1939) Vincze suggested that the social interaction of young children seems to offer more pleasure than discontent. As child motor development progresses the forms of social contact become more and more varied. These observations were confirmed by the studies of Eckerman, Whatley & Kutz (1975) and Rubenstein & Howes (1976).

Many researchers have indicated that during the child's second year of life he engages in social exchange with his peers. The nature of this exchange is usually "positive" (Lewis & Rosenblum, 1975; Mueller & Brenner, 1977; Ross, Goldman & Hay, 1979). Gauthier & Jacques (1985) observed children aged from 13 to 62 months in a stable group. Their study suggested the predominance of chesive activities in comparison with conflictual activities and affiliative patterns increased across the age ranges.

Howes (1980) considered that the vital interest in relation to peers is shown at the age of 24 months. At this age the interaction sequences are short, but they mark the emergence of complex social interactions.

In her study of unacquainted toddlers, Bronson (1981) observed that the "singles contact" was the most frequent activity throughout the second year. However, social reciprocity among young agemates was possible, but until the end of the second year the occurrence of social reciprocity was rare. Moreover, mutuality appears to have been achieved more readily in the context of disputes (Bronson, 1981).

This investigation deals with the development of the regulation of toddlers' behavior in communicative processes when his/her behavior is organized in reciprocal exchange with a peer. The aim of this study was to provide a description of different types of social interaction and the development of affiliative and agonistic exchanges with familiar peers in a naturalistic setting.

## **METHODS**

### **1. Subjects.**

In this naturalistic study, 30 toddlers were longitudinally observed: 14 of them (5 girls and 9 boys) were observed between 16 and 18 months of age, all children (15 girls and 15 boys) were observed between 19 and 24 months and 26 of them (12 girls and 14 boys) were observed between 25 and 30 months (see table 1).

The focal subjects were selected from 4 stable day care center groups, whose size varied from 14 to 20 children. From each group a sample was composed of 10 children (5 girls, 5 boys). The criteria for matching were sex, familiarity (the child must have been enrolled in the same group for

age in months	subjects		N° of observations		
	male	female	male	female	total
1- 16-18	9	5 (N = 14)	35	17	52
2- 19-24	15	15 (N = 30)	65	65	130
3- 25-30	14	12 (N = 26)	52	50	102

Table 1. Number of observations of children studied during the three different age-levels of their development.

at least 3 months before the study began), regularity of attendance in the group and the expectation that they will attend the same day-care center for the next 12 months. The final sample consisted of the subject who were videotaped at least during 4 sessions over a period of 9 months (10 children in the original sample were not included because the parents stopped working or moved away, or because of illness or irregular attendance).

Both parents of these children worked full time. They were from the lower-middle and urban working classes. 28 children lived in biparental families and 2 lived only with their mother; 14 were first-born or only children.

## 2. Setting.

The day-care center was located in a new district in the suburb of Besancon (North-Eash) of France. It is open all the year round, from 7.00 A.M. to 7.00 P.M. Working mothers are allowed to bring their children aged from 3 to 36 months. One or both parents bring the child to the center usually between 7.00 and 9.00 A.M. and come and get him/her between 5.00 and 7.00 P.M. As in most day-care centers in France, this "crèche" is financed by the local town council and the cost is proportional to the parents' income.

In this day care center there were 3 age groups: "babies" (from 3 months until walking age), "toddlers" (from walking age until the end of the 2nd year) and "older" groups (from the beginning of the 3rd year until the departure for nursery school). The observations were carried out on the "toddlers" and "older" groups.

During the study, the physical and social components of the day care center remained relatively stable from day to day; the children were given the same number of toys and they received the same food at meal time.

Their were 4 full-time female nurses for each group, with a ratio of 1 nurse for 5 children. They organized the activity schedule of the group during the day (meals, body care, directed play, free play, rest, etc..).

### **3. Data collection**

Five or six focal children (girls and boys) were videotaped when sitting together at a table in the feeding situation. One 30-minute videotape session was conducted par day, often with regular peers, at lunchtime (between 11.00 A.M. and noon.) for the whole sample, 294 observations were preformed, with and average of 9.46 (SD - 3.14) 30-minute videotape sessions for each child (table1)8

#### **a) Procedure:**

For each age group, the same room (8m X 5m; mixed artificial and natural lighting) was used for all the observations. The children had their lunch at 3 or 4 tables in this room. The nurses were instructed to place 5 or 6 children at the focal table which was videotaped. The children were allowed to choose their chair and usually remained seated until the end of the session; however, they did not have a regular seat, and thus did not have the same neighbours across sessions.

During the first 5 minutes, the children did not have any play materials; they were then given their meal presented on a plate with a spoon and a metal cup (for a full description of this situation, see Kontar, 1981).

The nurses were instructed to intervene as little as possible so that the behaviour of the children would not be subject to the direct influence of adults.

The sessions were videotaped through a one-way mirror from an adjacent room (distance between camera and the target table was 3-4m) and a microphone, hidden close to to the focal table, was used (the sound was fed directly into the videorecorder).

#### **b) Dependent measures**

All behavioural acts were coded exclusively from the videotapes. The sampling method used was of the "focal individual sampling" type (Altmann, 1974): one subject was selected at a time and all his/her interactions were coded during a 30-minutes session; this operation was repeated for all other children sitting at the focal table.

**A social interaction** was defined as a series of behaviours emitted alternatively by two or several toddlers. It was assumed that their behaviours were contingent to each other if they were contiguous in time. Social interaction was coded only if a successive three-act sequence, at least, occur-

red within 5-seconds of each other, e.g. if child A performed one or several acts in succession and child B displayed, within a 5-sec period one or more acts which modified the behaviour of A (this definition is a modified version taken from Mueller & Lucas, 1985; Finkelstein, Dent, Gallacher & Ramey, 1987; Bronson, 1981; Jacobson, 1981).

The social exchanges were analysed according to the quality of the interaction, two types of exchanges were categorized (see appendix):

**A) Agonistic interactions** which were defined as any interaction which combined with a two-act sequence between 2 children consisting of one or several of the following patterns: grabbing, threatening, withdrawing and aggression.

**B) Affiliative interactions** which were defined as any behavioural exchanges which were devoid of any act of grabbing, threatening, withdrawing or aggression. In this category we analysed the interaction of **addressing a peer**, when a child's behaviour was clearly directed to a particular peer and elicited an interaction with this target child. Moreover, in the affiliative interactions we distinguished **dyadic** (two participants) and **polyadic** exchanges (at least 3 participants). All these behavioural categories were coded in terms of duration and frequency per 30-minutes observational sessions. The individual duration and frequency data were plotted by summing up the results of all the videotaped sessions and then weighting the sum by the number of sessions performed for each child in each of the following 3 age levels: 16-18, 19-24 and 25-30 months. The group duration and frequency data were obtained by averaging these individual data. In order to avoid redundancy, the duration data were presented only when they provided complementary interpretive arguments.

In order to test the interobserver agreement, two observers coded independently 12 observational sessions. The percentage of interobserver agreement was calculated by dividing the smaller of the two observer's scores by the larger and multiplying by 100. Reliability was always greater than 85% for the frequency and the duration of interaction (see appendix).

## **RESULTS**

### **1. Age trends in interactions.**

In order to examine possible age trends in the frequency of affiliative interactions, a 2(sex) X 3(age) ANOVA was conducted. This analysis shows a significant effect for age level.  $F(2,64) = 97.4$ ,  $P < .0001$  (Figure 1) However, the difference between the first level (16 to 18 months) and the second

(19 to 24 months) is not significant ( $t$  test,  $t = 1.5$ ,  $P > .1$ ), the comparison between the second and third age levels reveals a significant difference ( $t = P < .001$ ). ( $t = 4.36$ ,  $P < .001$ ).

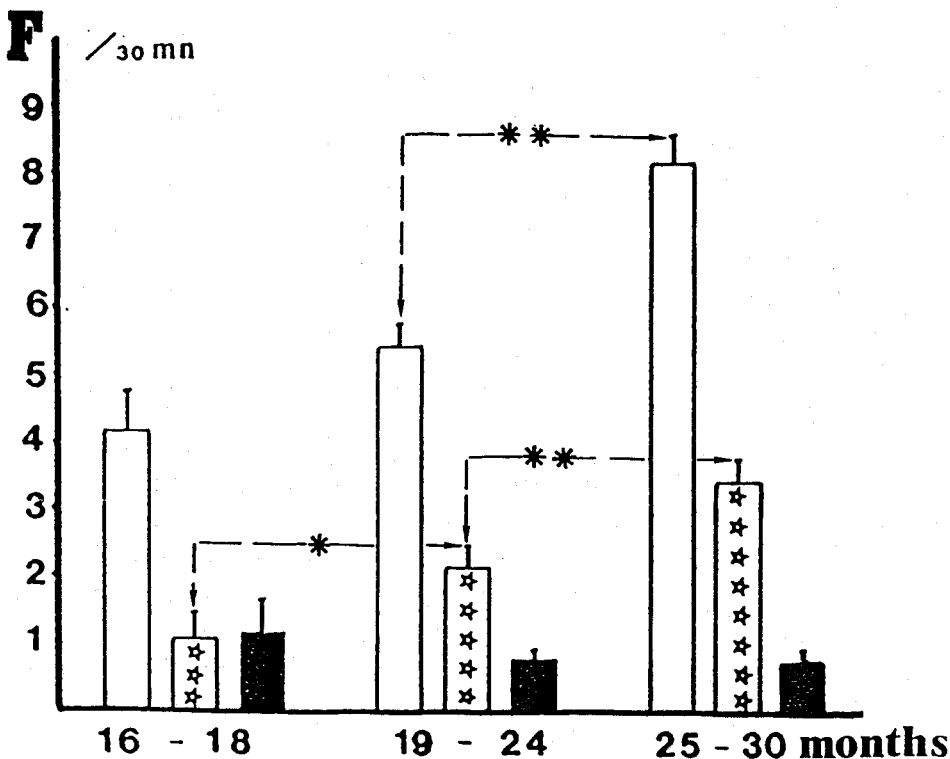


Figure 1 - Mean frequency of social interactions with peers

- affiliative interactions
  - addressing interactions
  - agonistic interactions
- \* p .05      \*\* p .01

Moreover, this analysis reveals a significant main effect of sex,  $F(1,64)$   $P < .0001$ ; males engaged more frequently in this type of interaction than females for the second age level ( $t$  test,  $t = 5.1$ ,  $P < .001$ ) and for the third age level (25 to 30 months) ( $t = 4.4$ ,  $P < .001$ ).

Otherwise, the mean frequency of agonistic peer interaction remained relatively stable across the 3 age-levels  $F(2,64) = 0.86$ ,  $P > .42$  (Figure ). However, the percentage of this frequency decreased throughout the three age-levels (22.2%, 12.9% and 8.9% respectively, Table 2). This data did not reveal any significant difference between males and females in the frequency of agonistic interaction  $F(1,64) = 0.56$ ,  $P > .45$ .

The Wilcoxon test was used to compare the frequency of agonistic and affiliative interactions (Table 2). The results of this analysis show that the frequency of affiliative interaction is significantly higher than the frequency of agonistic interaction for the three age-levels (Table 2).

interaction	age in months		3- (25-30)
	1- (16-18)	2- (19-24)	
<b>agonistic</b>			
M	1.2	0.8	0.8
SD	1.6	0.7	0.7
%	22.2	12.9	8.9
<b>affiliative</b>			
M	4.2	5.4	8.2
SD	2.3	2.4	2.3
M	77.8	87.1	91.1
<b>Wilcoxon test</b>	Z = 4.45 P < .0001	Z = 4.76 P < .0001	Z = 2.97 P = .03

Table 2. Mean frequencies, Standard Deviations and percentages of agonistic and affiliative interactions with peers in the three age-levels.

The mean frequency of initiative in engaging affiliative interaction with peer (addressing interaction) increased with age  $F(1,64) = 17.01, P < 0.001$  (Figure 1). In the second age level this frequency was significantly higher than during the first age level ( $t = 2.54, P < .02, t$  test). Addressing interaction was more frequent in the third age level versus the second ( $t = 2.85, P < t$  test).

The males took more often the initiative to engage interaction than the females. This difference was significant in the second age level ( $t = 2.72, P < .02, t$  test) as well as in the third age level ( $t = 3.35, P < .01, t$  test, Figure 2).

## 2. Dyadic and polyadic interactions

Dyadic exchanges between toddlers increased significantly with age,  $F(2,64) = 9.6, P < .001$  (Table 3). This increase became significant after 24 months of age ( $t = 3.22, P < .01, t$  test). Polyadic interaction also increased significantly with age  $F(2,64) = 18.6, P < .0001$ . This type of interaction increased significantly in the second age level ( $t = 2.6, P < .05,$



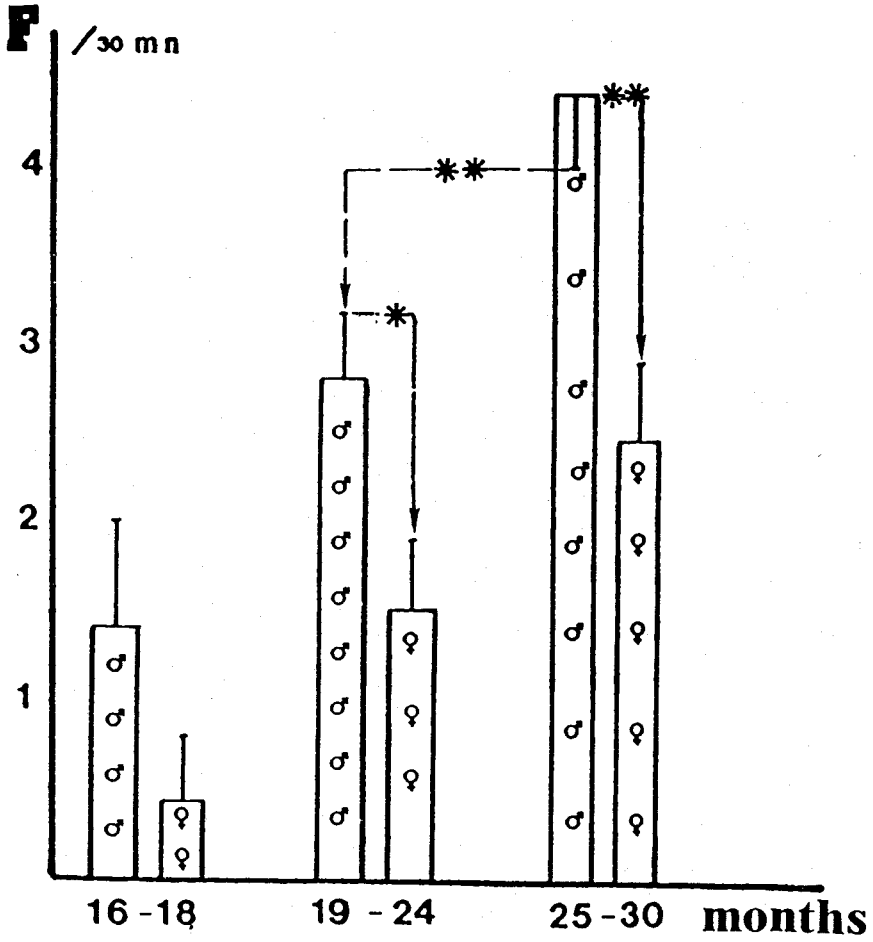


Figure 2 - Mean frequency of addressing interactions with peers (boys ♂ and girls ♀ )

\* P < .02

\*\* P < .01

t test) then again in the third age level versus the second ( $t = 3.2, P < .01$ , t test).

For both dyadic and polyadic interaction the frequency was higher in boys than girls  $F(1,64) = 9.9, P < 0.002$ ;  $F(1,64) = 9, P < 0.004$  respectively.

interaction	age in months		25 to 30
	16 to 18	19 to 24	
<b>A - dyadic</b>			
mean frequency	3.1	3.3	5.2
SD .....	2.1	1.9	1.9
mean duration .	46.2	67.7	117.3
SD .....	31.0	42.0	44.3
<b>B- polyadic</b>			
mean frequency	1.1	2.1	3.1
SD .....	1.1	1.2	0.8
mean duration .	42.4	61.4	104.9
SD .....	57.1	37.6	47.4

Table 3. Mean and Standard Deviations of frequency and duration (sec.) of dyadic and polyadic interaction with peers.

## CONCLUSIONS AND DISCUSSION

The results of this study indicate that the affiliative interactions and the contact initiating behaviour with peers increase significantly at the end of the second year and especially during the first half of the third year of the child's life. The frequency of affiliative interactions was significantly higher than the frequency of agonistic interactions over the period of this study.

The child develops and participates in interactions which become more and more complex (the interactions include at least 3 children). It can be thought that these modifications in the interaction systems are due to the skill of the young child in coding and decoding information coming from his environment. This skill seems not only to be due to maturity, but also to the child's experience with his/her peers and the acquisition of certain mutual roles for initiating social interaction.

904 dyadic interactions. This represent only 3.1% of all the interactions (29 interactions out of 933). Whereas in our study 27% of the affiliative interactions involved more than 2 children at the age of 16-18 months, 39.4% at 19-24 months and 37.2% at 25-30 months. This difference with Bronson's results could be explained not only by the fact that the children (Montagner, 1978; Restoin et al., 1985) and the development of the child's ability to code and decode the signals coming from his peers; the experience with peers may offer the opportunity for toddlers to communicate according a particular code. Early social interactions provide a better understanding of how the child's peer directed behaviour can be organized in reciprocal exchanges and open the way to mutual understanding of the other's intention. This can help decrease the agonistic interactions between young children.

Bronson (1981) observed unacquainted children during their second year of age and found the frequency of social interactions between these children to be very low: 40% to 58% of the interactions were agonistic. Our results show that 22.2% of interactions at 16-18 months and 12.9% at 19-24 months are agonistic (Table2).

This difference in findings can perhaps be explained by the fact that contrary to Bronson, this study dealt with children who had previous experience with their peers. They had regularly attended the same institution for several months before this study began.

Some authors have shown the influence of familiarity between peers in social exchanges (Lewis and Rosenblum, 1975; Belsky and Steinberg, 1987). These authors suggest that exchanges between young children who know each other are better coordinated and more frequent. Several studies have confirmed this hypothesis (Mueller & Brenner, 1977; Holmberg, 1980; Doyle and Rivest, 1980).

However, many further studies are required to demonstrate the impact of early experience with peers on the development of the behavioural repertory and the communication system of the young child. The increase in frequency and the duration of affiliative interactions can be due to the development of reciprocity in exchanges between young children. Towards the end of the second year the child begins to engage in further actions with reciprocal coordination which enables the child to maintain and extend his interactions.

Even if dyadic interaction is the most frequent type of exchange between the child and his peers, the duration of this type of interaction is the same as that for polyadic interactions. The duration and the frequency of polyadic interactions, which were observed as early as 16 and 18 months, increases significantly at the beginning of the third year of life. Bronson (1974) observed during the second year 29 triadic interactions as against

This study provides data to further our understanding of the multiple interactions towards the end of the second year and the beginning of the third year can be explained in part by the development of channelling mechanisms for threats and aggression observed during the second year she studied did not know each other, but also by the observation conditions. The observation situation can influence interaction (Mueller & Vandell, 1979; Kontar, 1981). The feeding situation could encourage polyadic exchanges in young children.

The importance of this type of peer interaction must be underlined because exchanges between more than 2 children in the same interaction require highly developed coordination (Kontar et soussignan, 1987). The study of child communicative competence is more complex than dyadic interactions would suggest. The child lives in a world surrounded by people and he/she must learn to communicate with several individuals at the same time and develop a specific repertory to interact with a polyadic group (Schaffer, 1984).

These results would seem to indicate that boys more often than girls have social interactions and contact initiating behaviour with peers. Other research has presented the influence of biological, environmental (Eibl-Eibesfeldt, 1979; Schiefenhövel, 1982) and cognitive factors in the child interaction process and sex-differentiated socialization (Jacklin and Maccoby, 1978; Block, 1983; Weinraub et al., 1984; LaFreniere, Strayer & Gauthier, 1984).

Lewis and Weinraub (1979) did not observe any behavioural differences between the two sexes during the first two years. In our results behavioural difference in boys and girls are observed between 19 and 24 months of age with the difference becoming more clear at the beginning of the third year.

According to Maccoby and Jacklin (1974) during the first years girls can have a greater language development than boys whereas boys can be more active. The parents could reinforce differently aggressive behaviour, competition and autonomy according to sex.

Our results do not show a significant difference between the two sexes in relation to agonistic behaviour. In studies of child aggression it would appear that boys are more often the victim and the initiator of aggression against a peer (Whiting and Pope quoted by Maccoby et al., 1974).

However, boys more often than girls have insistent aggressive behaviour in free play activities. The difference between the two sexes decreases in relation to agonistic interactions during which insistent aggression is rare in feeding situations (Kontar, 1981, 1987; Laurent, 1983).

The agonistic interactions tend to decrease from 19 months. This confirms the results obtained by Bronson (1981). The decline in this type of social interactions in early childhood; the affiliative exchanges were predominant in the feeding situation which can provide children with the opportunity to develop long and complex social interactions with peers. Further investigation is required to understand the genesis of developmental behaviour according to different contexts, family events and developmental characteristics.

# **APPENDIX**

## **Behaviours definitions and coding reliability**

### **A) Affiliative sequences.**

1. Offerin: this sequence aggregates 2 items, (i) giving, when any object is held in one or both of the child's hands and is held out to a peer, whether it is released or not; (ii) sharing: when two children manipulate the same object (91%)
2. Smiling or Laughing: when smiling with closed or opened mouth with or without vocalizations (96%).
3. Touching or stroking: when the hand comes into contact with the body of a peer (85%).
4. Imitation: when a child reproduces any movement and/or audible vocalizations emitted by a peer (93%).
5. Any gestual, vocal or verbal act accompanied by, immediately preceding or followed by a look directed towards a peer and eliciting an affiliative interaction (86%).

### **B) Agonistic sequences.**

1. Grabbing: sudden taking with prone hand of any object from a peer's hand or of an object standing on the table by (92%)
2. Threatening: vocal and gestual cation aggressing a peer without physical contact (see Montagner, 1987 (98%)
3. Withdrawing: any trunk or head movement which tends to increase the distance between peers or interrupt face-to-face exchanges after threats, grabbing or in an overtly aggression context (85%)
4. Aggression: when a child pushes, pulls, hits with hand or object, pinches, bites, etc, another child (97%).

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