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Games, social exchange and the acquisition of language

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ABSTRACT

The nature of early games and how they might assist the infant in language acquisition were explored in a longitudinal study of two mother–infant dyads, using video-recordings of their free play. Analysis of appearance and disappearance games, in particular, revealed: (1) a restricted format, with a limited number of semantic elements, and a highly constrained set of semantic relations; (2) a clear repetitive structure, which allowed both for anticipation of the order of events and variation of the individual elements; (3) positions for appropriate vocalizations which could in turn be used to mark variations; and (4) the development of reversible role relationships between mother and child.

INTRODUCTION

It has been a commonplace since Wittgenstein's *Philosophical investigations* to comment upon the game-like nature of language rules and to speak of different forms of language use as 'language games'. Indeed, some have made so bold as to suggest that the 'simulative mode' of play (Reynolds 1976) that emerges in higher primates is part of the evolutionary trend that eventuates in the appearance of rule-bound language in our own species. It is even possible (even, perhaps, a bit too easy) to write language-like rules for the observed play of children (Garvey 1977, Bruner & Sherwood 1976) with the implicit assumption that, in some unspecified way, the mastery of these rules constitutes a propadeutic to or an aid in the learning of language – or at least that part of it that has to do with such matters as turn-taking, role differentiation, the meeting of felicity conditions in discourse, and so on. But, in fact, there have been virtually no studies done to explore in detail how such rule learning (in game-like play) affects the child's progress in the mastery of language.

This is the more surprising since it has been noted incidentally by many writers that language often proliferates, or is at least more forthcoming, when the child is in 'playful' situations – a point most recently made by Dore (in press) and Miller (in press). Why might this be the case?

There are perhaps three things about formulated (i.e. more or less rule-

governed) play that would suggest themselves as relevant 'aids' in the child's acquisition of language. The first is that the SEMANTIC DOMAIN in which formulated play occurs is most usually highly restricted and well understood or conceptualized by the child. (We are here restricting ourselves to social-exchange games, for these are ones in which an adult tutor can enter into the situation and provide a 'scaffold' for the child's activities as well as a model of relevant linguistic rules.) Such early games as peekaboo, hide-and-seek, build-and-bash involve a restricted format, a limited number of semantic elements, and a highly constrained set of semantic relations. The second reason to suppose they are useful is that such games have a clear-cut task structure which, though permitting variation, nonetheless permits a high degree of prediction of the order of events, with a clearly marked beginning, middle, and end. In this sense, they can be thought of as possessing highly structured ASPECT in a linguistic sense of that term (temporal positions marked with respect to the course of an action). Included in this aspectual structure are positions for appropriate vocalization, and these vocalizations can be used in a generalized way to mark variations in these positions. This type of structure, moreover, permits anticipation of events as a spin-off of the predictive simplicity of the games usually played. This permits both requestive and vocal marking activity for the partners in the game. Thirdly, games of this sort have, as already noted, a clearly demarcated role structure. But that is only one part of it. The role structure almost invariably has the property of being reversible. In peekaboo, the mother can hide, or the infant. In build-and-bash, the mother can build and the child knock down, or vice versa. It is typically the case that as the child progresses in his sensory and motor control he takes on an increasing initiative in starting and in controlling the games. This also permits him to introduce variants in the pacing and order of the game, as well as expanding the so-called semantic elements comprised in the play. He can hide behind a nappy in peekaboo, or behind a book, his hands, the couch, whatever. We shall be considering all this in what follows.

We shall be concerned in this study with two children between the ages of 0;5 and 0;9. They are both subjects in a longitudinal study aimed at elucidating the transition from pre-verbal communication to the use of language. The 'games' we have selected for analysis are all built around the appearance and disappearance of objects.

Jonathan, whom we shall consider first, was very taken with 'games' having to do with the appearance and disappearance of objects. Whatever the 'motivation' of the game – whether a concern with 'object permanence' or with other aspects of achieving predictability of objects in the immediate environment – Jonathan's mother came to count on his interest and very early began to elaborate a highly structured game, made up of quite predictably linked segments. At the outset, Jonathan smiled at the climax but was little more than a spectator. He then began to show increasing anticipation since he could predict what the

objects would do next. Finally, he was able to carry out the game, with himself and his mother alternating the roles of agent and experiencer.

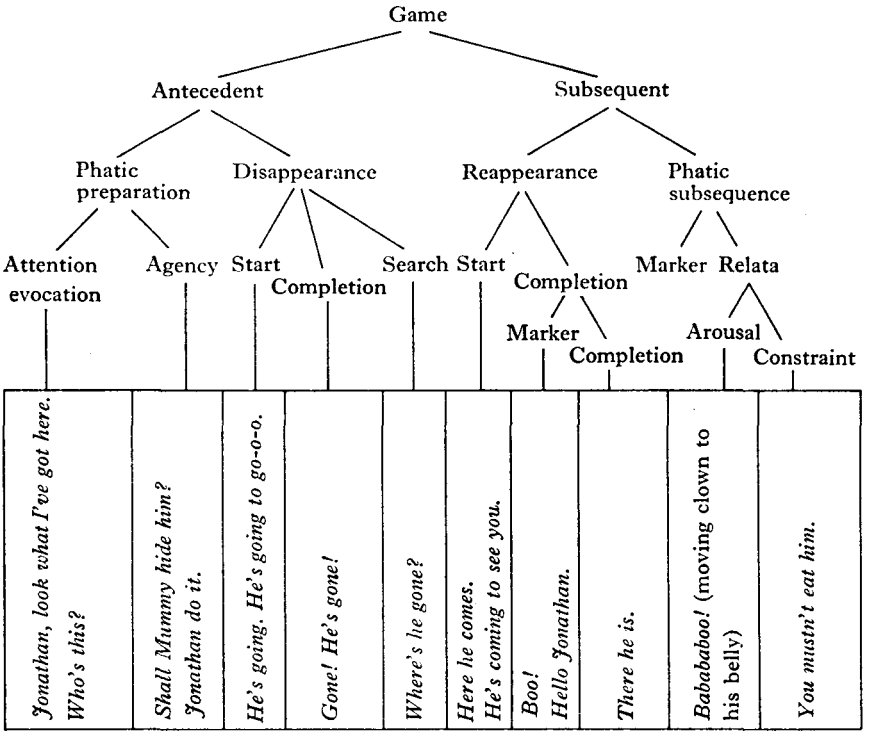
The game itself involved a clown that could be withdrawn inside a cloth cone on a stick and then made to reappear. It was first played when Jonathan was 0; 5 – after he and his mother had been playing a direct peekaboo game for two months. It continued in each of our three-weekly recordings along with other forms of peekaboo until 0; 9, disappeared, and then reappeared at 1; 2.

We defined a ROUND as one complete cycle of the clown's disappearance and subsequent reappearance, and a GAME to consist of any uninterrupted sequence of rounds. We observed eight games over the period studied, comprising some 74 rounds in all. In a normal round, the gross components of the game – preparation, disappearance, reappearance, and subsequence – would be highlighted by the clown's movements as well as by the mother's accompanying chatter. At PREPARATION, the toy would be moved, shaken, or otherwise made attentionally salient. At DISAPPEARANCE, the clown would be pulled into the cone with either seductive slowness or almost startle-evoking swiftness. REAPPEARANCE again was varied from creeping slowness to explosive re-entry. SUBSEQUENCE involved moving the clown to Jonathan's nose or chest. Jonathan's mother highlighted at least one of these features by an utterance, often more than one, but from one round to the next she selected different features to highlight. Over time, several features disappeared altogether. The game soon became routinized, though with variation as noted. Her moves were segmented and her verbal accompaniments were quite readily classifiable: since the game was so structured, we use the notation of a tree structure to depict its constituents (Table 1). Obviously, such a notation produces ambiguities and some incompleteness in description. It does not do full justice to paralinguistic features of the mother's utterances. Nor does it represent the subtleties of phasing and timing and how the baby's responses are related to the mother moving from one phase of the game to the next.

We have referred to the opening and closing of the game as having principally a PHATIC role, to keep the players in contact. Phatic preparation included attentional evocation followed by agency establishment – whether mother or child was to take the lead (although it was not until late in the day that the latter occurred). Disappearance had three constituents when fully realized – start, completion, and search, all marked distinctively. One element of variation was the possibility of 'deletion' of one of these, or more properly, their collapse into a single 'chunk'. The intonation pattern for each of the disappearing constituents was in the exaggerated register of Baby Talk (Ferguson 1977). In the fully realized version, there were pauses between all of the constituents. The same was true of the three constituents in the reappearance segment of the game, the prosody being just as well marked, and chunking again being possible. In the phatic subsequence, we note first a marker, movement of the clown towards

Jonathan, accompanied by an arousing sound when the object was brought to his body, then followed by exaggerated sham concern, as in *You mustn't eat him.* The fully realized version, in the mother's control, was paced to some considerable (though, alas, unmeasurable) extent by Jonathan's response to the proceedings, so that even when she was in full control, he also had some control by his timing of response.

TABLE 1 *The structure of the clown-and-cone game*



Jonathan's 'entry' into the game, and the change that occurs over the 74 'disappearance-reappearances' of the clown is of especial interest. Over the period from 0;5 to 0;9 he clearly began to adopt a more active role in the game. His mother, a keen observer of his participation, skilfully altered her game accordingly, by chunking elements in one round or eliminating them in another to produce the varying patterns and pace which continually caught him off guard. There were, for example, eleven possible juncture points within each round of each game that she could mark with a token of a vocalization type – the eleven elements in the terminal string, based on the final elements of the tree diagram.

These were, as noted, in quite typical language and intonation. The few variations she did introduce were in the form of elaborations rather than substitutions. Take, for example, *Where's he gone?* (used as her disappearance search question 43 times between Jonathan's fifth and ninth month). At 0; 7, she added to this standard phrase *Where is he?*; at 0; 8, *Is he in there? Can you see him?*; and at 0; 9, *Where's the clown?* (introducing the nominal) – all supplemental features to the standard disappearance constituent which occurred in every episode where the constituent was marked verbally until about 1; 2, when Jonathan himself was able to serve as the agent during part of the game.

At the start of the first game, Jonathan's mother highlighted nearly every juncture of the clown's movements. But as she moved from one round to another these began to vary. At 0; 5, for example, she marked as many as 9 junctures in one round, 7 in another round, but only one juncture in each of several later rounds. By 0; 9, her verbally marked junctures had been dropped to a maximum of 4. In general, the features marked shrank from about a third of the possible junctures during the early months to roughly a quarter by 0; 7 and 0; 8. Three elements in particular were sacrificed to sustain Jonathan's interest: the starter phase of the disappearance (*He's going*), the starter phase of the reappearance (*Here he comes*), and the completion of the reappearance (*Here he is*). What remained were the quick withdrawal (*Gone!*) and explosive re-entry (*Boo!*) and a far greater use of constraints (*Don't eat him* or *No, I don't think you'd better put that in your mouth*) – utterances which by their nature were much more closely tied to the CHILD'S actions and presumed intentions and far less ritualized in character.

Looking at the child's responsiveness to the mother's vocalizations we see his role developing even more clearly. At 0; 5, manipulatory responses dominated. By 0; 6, his attempts to reach or manipulate the clown were accompanied by undifferentiated vocalizations, broadly distributed throughout the game. By 0; 7, Jonathan seemed to discover that the game itself had a predictable rhythm. Apparently uninterested in manipulation at this point, his responses (which now included smiling and laughter) came at particular junctures indicating his anticipation: during the 'search call' phase of disappearance and especially during the 'marking' phase of the clown's reappearance. Smiling and vocalizations were now shared with the mother as he correctly anticipated where and when the clown would appear.

In the following months Jonathan began trying to take a more active role, perhaps hoping to produce the disappearance and appearance effects himself. By 0; 8, he was more adept physically and no longer content to attend passively to objects that were within his reach. Where before he had seemed pleased to be surprised by the clown, now he was requesting a more active role, wishing to explore the clown by himself. When his mother did not comply or when she limited his explorations, his attention lagged and he was easily distracted by other attractions in the room. During five out of thirteen rounds, at 0; 8 (either after

the completive-disappearance or after constraint by the mother), Jonathan abruptly abandoned the clown-target for other objects. His mother had either to adapt her game to hold him, or lose him altogether. Her solution was to let him take possession of the clown more often, while sharply reducing the game to its two essential features (*gone!* at disappearance and *boo!* at reappearance). And by 0;9, he was permitted to touch and hold the clown during nearly every round. The major constituents of the game (appearance and disappearance) were losing their appeal, giving way to manipulatory exploration by the child (see Table 2). If his mother removed the clown to prevent Jonathan from exploring any further he protested.

TABLE 2. *Percentage of rounds in which Jonathan held, touched or mouthed the clown doll*

Age	Rounds Percentage	Total number
0;5	36	11
0;6	43	23
0;7	6	16
0;8	53	17
0;9	75	8

The game had lost favour. Jonathan's attention wandered from the clown in the cone to matters that allowed his growing sensory-motor powers greater scope. But, in general, play with appearance and disappearance persisted. Midway through his ninth month, for example, peekaboo re-surfaced. But it had a new feature – just as the game that had just gone out of fashion with him was to reappear later with a new feature. Now peekaboo was quite simple, almost minimal: the mother hid a toy animal behind her back, then 'surprised' Jonathan with its sudden appearance and pronounced *boo!* surprise marker. But now, for the first time, Jonathan attempted to match his mother's utterances with a regularized one of his own (a labial vibrato, or 'raspberry'). From this small beginning, an expanded pattern began to elaborate. A month later his mother hid herself behind a chair, Jonathan waiting on the other side, watching, vocalizing, and laughing in ANTICIPATION of her appearance as well as after her reappearance. His vocalizations were not regularized: exuberant calls as she disappeared and reappeared. But he regularly looked away immediately after her reappearance but then joined gaze with her before her next disappearance. After another two months (midway through his 12th month), we saw Jonathan hiding himself behind the same chair. He not only initiated the hiding but terminated it on reappearance with a regularized *ooo!* And during the same episode, when the experimenter joined in and disappeared, Jonathan commented *gone!* He had not only taken on initiation of the game as agent, playing to another as experiencer,

but was able to share the role and to keep a part of it for himself – by providing the verbal marking.

Two months later, the clown-cone game returned to favour. Now Jonathan was capable of participating as part-agent and part-experiencer. Interestingly, there was more negotiating over agency once Jonathan was capable of the dual role. Indeed, he played the agent rather well: first ejecting the clown from its cone while vocalizing his variant of *boo!* (*ooo!*), then approximating his mother's *all gone* (*a ga*) while stuffing the clown back into its cone. And, finally, he imitated his mother's *peekaboo* with *pick* as he yanked the clown out again and again stuffed it back. And when his mother served as agent, he gestured (raising his arm) and vocalized (*ah*) to signal the reappearance of the clown. He had not only mastered the structure of the game but learned to coordinate his own gestures and vocalizations at appropriate junctures in its course – whether he was agent or experiencer. Now together, facing and smiling at each other, they could call out *boo!* in unison whichever one manipulated or simply watched.

By the end, then, Jonathan had learned the structure of a game – a highly regularized one – and finally outgrown it, as his need to manipulate the elements 'swamped' his interest in anticipation. By the second phase of peekaboo, he could both initiate the game and serve as agent of the action. The rudiments of agency also appeared, and with them the appropriate accompanying actions. By the time the cycle was complete, he was able to return to the initial clown-and-cone game, to serve as agent or as experiencer and to vocalize at appropriate junctures in the game in either role. In Hockett's sense (1963), he had not only mastered interchangeability of roles in this routine game format, but also become master of the felicity or appropriacy conditions inherent in executing the task properly. And no minor point: he had adopted what Dore, Franklin, Miller & Ramer (1976) refer to as a 'phonetically consistent form' (PCF) of utterance to mark the various junctures appropriately – *all gone*, *boo*, *pick*. The game itself seems to have provided a framework or scaffold to which he could assimilate his burgeoning linguistic capacities and master their use.

With Richard, our other child, peekaboo was more directly interpersonal from the start, and following a slightly different course. Its structure resembled Jonathan's clown-and-cone format, though it could be either he or his mother who was made to disappear behind a screen – with the occasional toy being the target in the game. The games varied more than Jonathan's, Richard's mother being more given to variations on a theme. Or perhaps peekaboo lends itself more to variation.

In peekaboo, the constituents of the game were the element hidden, the screen or device for hiding, the agent effecting the hiding, and the agent effecting unmasking or reappearance. Between 0; 6 and 0; 11, 71 rounds were observed during 20 different games. As was the case with clown-cone, it then went underground, not to appear again until 1; 2. It was then observed in altered form for

another 29 rounds until 1 ; 3, when it went underground again. At 1 ; 9 it reappeared, but in a form that could be played by the child alone, without a partner.

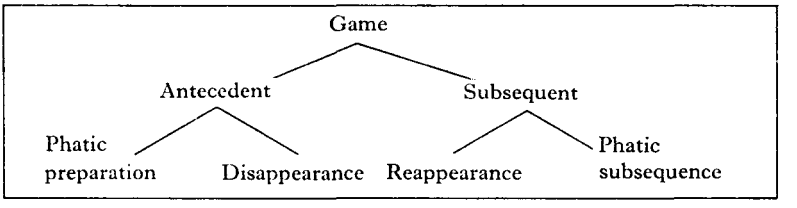
Consider the early game (0 ; 6–0 ; 11). Again, we can infer the mother's version of the game's structure from her moves and from her verbal marking of them. Roughly, it exhibited the same 'higher structure' as clown-and-cone, though the terminal string was such from the start that, early on, Richard could take over the role of agent at all junctures. In the beginning, however, agency was almost completely handled by the mother (Table 3). She always did the hiding, about half the time covering herself. By 1 ; 2, the pattern was transformed: nine out of ten times, it was the CHILD who did the hiding, and inevitably he hid himself. In reappearance, again the mother initiated most of the time in the early months, invariably reappearing with a smile and *hello!* Richard 'helped' by reaching towards the mother's mask one time in five. When he was hidden, however, he generally unmasked himself. Later in the first phase, if he did the hiding, which he did increasingly, he did *all* his own unmasking.

As he moved from the role of spectator in the first phase to that of actor in the second, his vocalizations changed. Note that he could vocalize BEFORE or AFTER the reappearance of the hidden subject – i.e. in ANTICIPATION or announcement of what was to happen, or upon COMPLETION of the act. In the early phase, these were equally divided. In the later phase, there were six completives to one anticipatory (Table 3). And while in the earlier period his vocalizations were excited babbles, the later period was marked by lexemic-like, PCF sounds, principally directed to the partner in the game, including (at 1 ; 3.21), *peeboo, da, hi da, dere, ahh.* Since many of these were also used in contexts other than peekaboo, functioning as greetings (*hi*) or demonstratives (*ahh, da, dere*) it is possible that by the second phase, peekaboo was no longer a self-contained format. The migration of *hi* and *da* into the routine suggests that perhaps it was becoming extended to include greeting and showing, although we cannot be sure that *hi* was not an attempt at the word *hide.*

During the three months demise of peekaboo (0 ; 11–1 ; 2), Richard had started on another appearance–disappearance format involving active search for objects placed inside containers or closed fists. The hiding was always done by an adult – his mother or the experimenter – and the searching and finding by Richard himself.

When peekaboo reappeared at 1 ; 2, he was able to take the role of agent at all junctures. At first appearance, he watched his partner hide behind a videotape box twice, and then 'took over'. He hid behind the same box 16 times consecutively, each time responding to his partner's *boo!* with a smile and an occasional vocalization. But by 1 ; 3 the game had been converted into an even more active form, Richard screening and unmasking by going behind the sofa for disappearance, and reappearing on his own.

TABLE 3. *The structure and analysis of the peekaboo game*



Percentage of rounds during which mother or child initiated hiding

	Richard's age	
	0 ; 6–0 ; 11	1 ; 2–1 ; 3
Mother initiated hiding	100·0	21·9
Child initiated hiding	—	78·1
	(73 rounds)	(32 rounds)

Percentage of rounds during which the mother, the child, or an object was hidden

	Richard's age	
	0 ; 6–0 ; 11	1 ; 2–1 ; 3
Mother hidden	43·8	6·2
Child hidden	28·8	93·8
Object hidden	27·4	—
	(73 rounds)	(32 rounds)

Percentage of rounds during which mother or child removed mask

	Richard's age	
	0 ; 6–0 ; 11	1 ; 2–1 ; 3
Mother removed mask	75·3	12·5
Child removed mask	24·7	78·1
Both removed mask	—	9·4
	(73 rounds)	(32 rounds)

Percentage of rounds during which child's vocalizations occur before and after reappearance phase

	Richard's age	
	0 ; 6–0 ; 11	1 ; 2–1 ; 3
Before reappearance	20·5	6·2
After reappearance	20·5	37·5
No vocalizations	63·0	56·2
	(73 rounds)	(32 rounds)

Peekaboo for Richard as well as Jonathan was a game with repetitive format. Fifty-five out of 75 rounds, for example, used a nappy as screen. As with Jonathan, it lost favour as a game at 0 ; 11 (and stayed out of favour till 1 ; 2). During the interim, Richard played on with hidden objects in a less ritualized routine, as when his mother hid keys under cups or in her hands, Richard having to choose the correct hand or cup. And by 1 ; 1 he was putting objects inside

cups himself. When peekaboo reappeared, at 1 ; 2, it then seemed to combine two games – 'search-for-the-hidden-object' and peekaboo proper.

By 1 ; 3 and after, Richard and his mother played peekaboo rarely. But object hiding continued. The last appearances of peekaboo surfaced six months later (1 ; 9.14), after Richard had acquired a fair amount of language. But, interestingly enough, this time it was a solo, between Richard and objects HE had hidden and then caused to reappear. For all its solo quality, however, it was highly ritualized, as a 'pretend' game in which reappearing objects were greeted socially as if they were people. An example: Richard, having filled a large kettle with pieces from a puzzle, greeted each piece with *hello house!* when he spied it in the pot that he uncovered, sharing a smile or laugh with his mother as he did so. He repeated the routine again and again, each *hello house* followed by a *bye-bye house* as he replaced the lid. During this routine, it happened that the doorbell rang. Richard swung around, pointed to the door, calling out *hello!*, experiencing no difficulty in shifting from the pretend hellos of the game to the conventional mode of greeting. His contrastive *hello* and *bye-bye* could now be placed systematically in a game or in a greeting at appropriate junctures in the action. He could also manage interchangeable roles. The following month, for example, HE asked *Where Mummy* when she hid and said *hello* when she reappeared – roles hitherto controlled by his mother only, in 'real' peekaboo.

The final episode in the saga of peekaboo occurs at 1 ; 11.14. Richard had lost an object behind the sofa cushion. He had been able for months to deal with such situations by searching and finding on his own or by calling for aid. But now the act of finding 'for real' was assimilated to the old play format. Searching in earnest, he called out *allu down dere*, followed by 'effort' sounds he used in calling for aid. Having succeeded at that, albeit with the help of the experimenter, he then reverted to the play format, now putting pencils INTENTIONALLY where before they had gone accidentally, even greeting their retrieval by the experimenter with his call of *allu.*

Richard's language for appearance and disappearance had developed in highly controlled, predictable, play formats. But once developed it could be used for 'seriously instrumental' objectives as well. The instrumental use seemed an extension of what had originally developed in play contexts where the relation between means and ends was non-serious, irrelevant to practical needs of any manifest kind. One gets the impression that without the sustaining game-feature, instrumental communication often regresses to demand vocalization, the kind of effortful grunting to which Richard resorted when trying to enlist an adult's help.

In brief summary, then, Richard and his mother (like Jonathan and his) gradually establish a ritualized game in which they share excitement and genuine pleasure. The game diversifies and provides an increasing place for the child's initiative, as he learns both how to initiate the game and how to execute the moves, with a real interchangeability of roles. In Richard's case, the appearance

and disappearance of objects also becomes a matter of lively interest. In time, the two games combine. And indeed, into each also migrate, so to speak, his procedures for social greeting – whose very acquisition might have related to the peekaboo game itself. The games themselves, limited as they are in variation, become boring after a time. But the framework is retained. For when new variants appear much later – as in his solo game – the old moves have been inserted in the new game. In the end, he is able to transpose the game into the realm of pretend, and is capable of shifting from pretend into the real world.

A BRIEF CONCLUSION

We commented initially that early games might be expected to give the language-acquiring child assistance in mastering forms of his native language. They do so by (*a*) limiting and rendering highly familiar the semantic domain in which utterances are to be used; (*b*) providing a task structure that can be easily predicted and that offers clear-cut junctures at which functionally intelligible utterances can be inserted, and (*c*) by allowing easily for the development of reversible role relationships between speaker and hearer. We should probably add a fourth and fifth element: (*d*) the tasks involved are very amenable to having their constituents varied, not only for the mother as tutor, but for the child as agent, and (*e*) the playful atmosphere doubtless permits the child to 'distance' himself from the task sufficiently to sustain a readiness to innovate without erring and thereby to avoid frustation.

In the two children examined, these factors have been observed to operate in a way that leads the child into appropriate dialogue and also into speech usage on his own with objects, people other than his mother, and with the realm of objects and events that are on the level of 'pretend'. It is striking that many of the forms that later occur in practical situations make their first appearance in the safe confines of structured games.

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