PART I

STRUCTURE OF OVERT AGGRESSION
1. UNIFORMITY OF OVERT AGGRESSION AS SHOWN IN PREVIOUS INVESTIGATIONS

The hierarchical models of personality structure (Eysenck, 1960; Guilford, 1959) illustrate how personality can be conceived as a hierarchy of traits at different levels of generality. The most general level consists of types built up on the observed intercorrelations of traits. Under the trait level is the one which Eysenck has called »habitual responses.« The least general level has been called »specific responses,« and it has been the starting point for the study of the structure of aggressiveness. The concept of generality has been used to refer to the consistency of a certain kind of behaviour from one situation to another. In the present investigation, however, the problem of the structure of a trait is treated from a consideration of how unitary the manifestation of the trait is in individuals' behaviour. Consequently, the matter of main interest is the interrelationships of different forms of aggressive expression, i.e. the uniformity of aggression.

The conception of aggression covers a great number of different specific responses. After making observations of the behaviour of 9—16-year-old boys in a boarding-school, Mandel (1959) listed 2205 different aggressive responses, and Goodenough (1931), respectively, after observing children aged 7 months to 8 years, nearly 2000 different outbursts of anger on the basis of mothers' recordings. In a study of the interrelationships of aggressive responses the sampling of variables becomes the central problem. Responses can be classified in different ways. As categorization has usually lacked theoretical background in these investigations, the response classes vary considerably from one study to another, which makes comparison of the results as well as generalization of them more difficult.

The following survey concentrates on the studies of children's ag-
gression, the objectives of which resemble to a certain extent that of the present investigation. In this survey the main emphasis is given to the methods and the classifications of aggression.

1.1. Classifying and descriptive studies

In earlier studies of children’s aggression (Goodenough, 1931; Dawe, 1934; Jersild & Markey, 1935; Appell, 1942; et al.) the successions of aggressive events have been classified and the frequencies of different categories have been recorded. Apart from the influences of age, sex, and socio-economical status of the family, there has been little speculation on the causes of interindividual differences. Most studies have been carried out in nursery schools by observing aggressive behaviour occurring in relatively free situations. These studies have presented a great deal of descriptive material concerning the conflicts of girls and boys aged 2—5 (e.g. causes of quarrels, forms of aggressive responses,\(^1\) outcomes of quarrels, victims of aggression, and interference by teachers), but the analyses of results have warranted few conclusions concerning the uniformity of individual aggressive behaviour.

Some of the studies of the frequencies of aggression have been made by observing behaviour according to check lists (Must & Sharpe, 1947; Gewirtz, 1948, unpublished dissertation; Sears, Whiting, Nowlis, & Sears, 1953; Walters, Pearce, & Dahms, 1957; et al.). Neither of these studies has included analyses of the intercorrelations of different categories of aggression. In her study Body (1955) took into account both the mode of aggression and the targets by observing physical and verbal aggression toward teachers, peers and objects, but she analysed only differences between two nursery schools. In several investigations (Faigin, 1958; et al.) the observed categories of aggression have been employed for combining one single estimate of aggressiveness without presenting the intercorrelations of the categories.

1.2. Intercorrelations of different categories of aggression

Information furnished by previous studies concerning intercorrelations of different forms of aggression has been based on categori-

\(^1\) Categories of responses catalogued earlier (Pitkänen, 1966).
izations of many kinds. Jersild & Markey (ibid.) divided aggression into four types: physical aggression toward other persons and toward objects, verbal aggression, and screaming, calling the teacher, etc. as one category. The intercorrelations of the first three were positive (+.17 — +.71), but the fourth category correlated with the others varyingly in each nursery school group (—.49 — +.50). The fourth category mentioned is comparable with indirect aggression, which, in the studies by both Bandura & Walters (1959) and Lesser (1959), correlated negatively with physical aggression toward peers. Their classifications of direct aggression were similar to that presented by Jersild & Markey (physical and verbal aggression), but Lesser made a further division into provoked and unprovoked aggression. The intercorrelations of direct aggression obtained by Lesser were positive, varying +.23 — +.73.

Sears, Ray, & Alpert (1965) divided aggression into two main groups: antisocial and prosocial (also Sears, 1961). In antisocial aggression a division was made into physical and verbal aggression, injury to objects, and mischief; in prosocial aggression into verbal disapproval of behaviour, and tattling.¹ With the exception of the category of tattling and mischief, the intercorrelations for boys were positive (+.04 — +.63) and showed greater consistency in trait structure than the intercorrelations for girls.

In the study by Kagan & Moss (1962) dealing primarily with the stability of some motive-related behaviours, the aggressive variables were also correlated in each age period (0—3, 3—6, 6—10, 10—14). The categories of aggression were somewhat broader (e.g. competitiveness and dominance of peers) than those in the studies discussed earlier. In spite of the age of the subject the intercorrelations of aggression were positive, varying +.17 — +.1.00.

It can be concluded that the intercorrelations of aggression variables are generally positive, but the size of the correlation coefficients varies considerably according to the selected categories of aggression. On the basis of the results one is justified in agreeing with McNeil² who has made the conclusion that »future investigations of aggression ought to exercise some caution about viewing expressions of hostility

¹ Originally, also direct physical aggression in phantasy, indirect physical and verbal aggression, vicarious aggression, and asking retribution were included in the division. Their frequency distributions were, however, low and skew, wherefore they were excluded from the analysis of results as separate variables.
² McNeil studied the relationships between aggressive behaviour and social status, and at the same time examined the interrelationships of the four categories of aggression by the Chi square.
as a unitary phenomenon that can be captured by means of a single global estimate of 'aggressiveness' (1962, 75). In many investigations the correlation coefficients have been lowest between direct physical aggression and indirect aggression. One difficulty in the interpretation of the correlational results ensues from possible technical relationships between different categories especially in the case of short-term observations; the presence of a particular type of response inhibits the occurrence of another type of aggression in an individual.

The method of factor analysis makes it possible to describe the interdependences of variables in such general terms which are not easy to discover by examining individual correlation coefficients. Very seldom, however, has it been applied to the structure analysis of a particular personality trait. Of the studies of aggression only that by Mandel (1959) has concentrated on the problem of structure analysis of the trait, especially on the question of whether spontaneous (triebmässig) and reactive aggressive behaviour can be factorially differentiated.

Mandel classified observed aggression into seven categories. The matrix of intercorrelations was factor analysed. In regard to the problem of the reactive-spontaneous nature of aggression, the factors were complex. The first factor (»Faktor der Feindseligkeit«) comprised both severe spontaneous and reactive aggression. The second factor was identified »Faktor der Körpermähe,« on which the variables of playful aggression had the highest loadings, and the third factor was called »Faktor der Hemmung oder Beherrschung der Aggression.«

The uniformity of aggression as a secondary problem was studied factor analytically in the research program of the Rip Van Winkle Foundation. Aggressive behaviour was measured by peer-ratings. The items (24) collected from literature and other sources had been categorized speculatively into physical, verbal, indirect, acquisitive, and unclassified aggression (Walder et al., 1961). A cluster analysis of the items implied that instead of many dimensions corresponding to the classifications originally postulated only one homogeneous dimension of aggression could be obtained. A factor analysis with additional variables yielded a common bipolar factor consisting of aggression

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1 Of these five belonged to the main division I (»Ernsthafter Verhaltensweisen«) so that three categories formed the group »Mehr reaktiv,« and two categories the group »Mehr spontan.« One category constituted the main division II (»Handlungen, bei denen ernsthafter Charakter fraglich«), and one category the main division III (»Spielerische Handlungen«).
and rejection versus popularity and aggression anxiety. The researchers paid attention to the numerosness of possible logical divisions between factorially homogeneous items. The general factor of aggression was also closely connected with evaluations of personality in the study by Banta & Walder (1961).

Most of the factor analytical studies of aggression mainly furnish information about the relationships between aggression and other personality traits. Some studies (e.g. those by Wiggins & Winder, 1961; Mitchell, 1956) aimed at the preparation of a peer nomination inventory. The factor analysis carried out by Wiggins & Winder yielded two dimensions of aggression for the aggression variables (12) collected by interview: Pure Aggression (items loaded only on Hostility factor) and Disruptive Aggression (items loaded also on Attention-getting factor, which included also some of the variables of dependency.\(^1\) In the factor analysis by Mitchell the items of aggression (5) constituted one of the three factors called Social Acceptability, Social Isolation, and Aggressive Maladjustment.

Teachers' ratings or observations have resulted in a more differentiated structure of aggression than peer-ratings (Cattell & Coan, 1957; et al.). In Koch's (1942) study of preschool children the observed variables (7) of overt aggression loaded on five primary factors. Altogether nine primary factors had been extracted. The total number of variables was 38, which included also variables of a child's social, neurotic, and playing habits. One of the second-order factors, Socialization (meaning that an individual's activity agrees with the standards of behaviour accepted by his social group), consisted of four primary factors,\(^2\) all of which were loaded by aggression variables. The second-order factor, Restraint-Expansiveness, was loaded most highly by the primary factor Social Extraversion which accounted for the largest proportion of the common variance of verbal aggression and also for some of the common variance of indirect and physical aggression.

The reanalysis by Digman (1965) of the trait-rating material collected by Peterson and Cattell (1959) for nursery-school children yielded three second-order factors for the eight primary factors. The second-order factors were Successful Socialization, Extraversion-

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\(^1\) Other categories of variables were withdrawal, depression, and popularity.

\(^2\) The factors were called Lack of Aggressiveness (containing the variables pout and sulk, and indirect or remote attack especially with negative loadings), Hypersensitivity (pout and sulk, and physical attack), Conformity or Conscientiousness (negative loadings: refuse and physical attack), and Inmaturity (cry and whine, and refuse).
Introversion, and Emotionality. Of the primary factors Hostility was describable in terms of extraversion and emotionality.

Peterson (1960) examined the structure of trait-ratings by rotating only the two principal factors and found out that one of them, General Adjustment, was very much similar to Eysenck's general factor of Neuroticism. It was loaded by such aggression variables as disobedience and irritability. The other factor was identified as Extraversion-Introversion, and it included for example variables of dominance.

The studies discussed above have dealt with normal children. Results of the studies with problem children have been comparable with them: examinations of the two factors accounting for most of the common variance (Peterson, 1961; Peterson, Quay, & Tiffany, 1961; Eysenck & Rachman, 1963; Achenbach, 1966; et al.) have revealed that one of the factors covers extravert conduct problems (psychopathy) and contains the variables of unsocial and attacking behaviour, the other personal problems or diffuse psychopathology (neuroticism).

In the behaviour of juvenile delinquents many clusters or factors have been found, e.g. socialized delinquency, unsocialized aggression, and internal conflict (Hart et al., 1943; Lorr & Jenkins, 1953). Slavson (1943) outlined aggression in problem children into nine types, which included aggression from prolonged infancy, aggression as attention-getting, aggression as a release from organic tension, and aggression from hostility. Megargee (1966) assumed that the assaultive characteristic in criminals is connected with inhibitions against overt aggression: in the uncontrolled aggressive type these inhibitions are low, and he usually responds aggressively when frustrated, whereas the chronically overcontrolled type inhibits aggression until instigation to aggression summates to the point where it exceeds even his excessive defences. Empirical study revealed that the hypothesis was oversimplified: a relative balance of inhibition and aggression was not sufficient to account for the strength of aggressive responses in all situations.

1.3. Summary

There are differences between the studies of children's overt aggression in the sampling of variables, systems of classification, assessment techniques, analyses of results, and number of identified factors.

Representative samples of variables and a thorough gathering of material have been the starting points in earlier descriptive studies
and in some factor analytical studies of children’s aggression. Classifications, however, have been necessary to reduce the number of variables. In addition to verbal and physical aggression as the most usual categories, there are also categories of spontaneous (unprovoked) and reactive (provoked) aggression, indirect aggression in different forms, irritability, prosocial aggression, and competitiveness, as well as classifications based on the target or cause of aggression.

The main methods of assessing aggression have been observation, teacher rating and peer rating. The first two have resulted in a more differentiated structure of aggression than peer rating. The occurrence of more general aggression factors in peer ratings results partly from the halo-effect reflecting the peers’ sociometric status, which, in ratings, increases the accumulation of negative or positive characteristics in popular or unpopular peers, partly from the sample of variables. When the battery of aggression variables and the variables of popularity which correlate negatively with them have been factor analyzed (Walder et al., 1961; Banta & Walder, 1961), the largest proportion of common variance in ratings has been accounted for by the bipolar »reputation factor.« Walder’s cluster analysis technique is not likely to reveal the dimensions of interindividual differences in behaviour in the same way as factor analysis.

In regard to the methods of observation and teacher rating the findings concerning the structure of aggression are comparable with each other on the basis of second-order factors and of the two first principal factors. One dimension of aggression covers socially reactive or dominant behaviour, the other maladjustment or hostility. An examination of the correlational results revealed that the lowest correlation coefficients prevail between the corresponding categories of aggression, direct physical aggression, and indirectly outbursting aggression.

When a greater number of factors has been rotated, the results have depended on the sample of variables in a fundamental way so that the invariance of the structures has been low. Because of considerable differences in the correlation coefficients between each category of aggression it is predicted in the present investigation that there are significant dimensions of aggressive habits between the specific response level and the trait level, provided that such principles of classification can be found for the sampling of variables which are essential in regard to social behaviour.
2. A DESCRIPTIVE MODEL OF AGGRESSION

When an attempt was made to outline the main types of interindividual differences in aggressive behaviour, there were many alternatives available. The main division could have been made on the basis of the mode of aggression, i.e. the organ system (physical, verbal) involved. This classification, although frequently used in previous studies, has usually not been related to interindividual differences in behaviour. The results concerning children’s behaviour have also revealed a high correlation between physical and verbal aggression. Consequently, this principle of classification has not been considered essential.

In his conceptual classification Buss (1961) made further divisions on the basis of the active/passive quality of aggression. As for rating, it is a relatively complex characteristic, since aggressive behaviour is usually active. It is questionable whether passivity, without for example mimic aggression, which can be considered a response to a thwarting stimulus in some situation, can be recorded aggressive: passivity may result from cognitive appraisal of the thwarting situation and control of behaviour, or in some cases from inhibition of action caused by fear.

As is revealed in Chapter 1, indirect aggression has often been considered a separate category, yet greatly diversified in content. On the basis of previous correlational results the direction of aggression seems to be a more significant factor than the mode of aggression. Consequently, the direction of aggression should be an important principle of classification.¹

¹ Special attention was paid to the direction of aggression in the model of classification of verbal test responses presented by Rosenzweig (1947, 1948, etc.). No division was made, however, in the dimension direct/indirect; the
The division into offensive and defensive aggression can be found in earlier descriptive investigations of children, but it has not been revealed in correlational studies. The term aggression has often been used to describe offensive behaviour. Also the terms aggressor and victim as well as the definition of the concepts of aggression and attack as synonyms (Buss et al.) imply offensive behaviour. According to instinctual theories, offensive aggression represents spontaneous (triebmässig) aggression (Mandel, 1959; et al.), whereas the frustration-aggression hypothesis refers to defensive, reactive aggression. In the writer’s opinion, the two forms of aggression have not been examined sufficiently in the previous observational studies. An attempt is made in the present investigation to differentiate between defensive and offensive behaviour.

An attempt was made within the present investigation to organize the characteristics of aggressive behaviour by constructing a descriptive model of aggressive responses. The purpose was to find out dimensions such as would (1) be closely based on theoretical interpretation of human learning of aggressive behaviour, (2) have differential psychological correspondence, and (3) be noticeable to an observer on the basis of a succession of immediate events. The following presentation of the descriptive model focuses on the observable formal characteristics of responses, and less attention is paid to interpretative aspects. In the attempt to find out the correspondence between the descriptive model and individual aggressive habits the contents of the formal dimensions are extended to conceptual constructs.

According to the definition by Buss (1961, 1), »all aggressive responses share two characteristics: (1) the delivery of noxious stimuli, and (2) an interpersonal context.« As was mentioned in the introduction, a response is defined as being overtly aggressive if it is seen to »deliver noxious stimuli to another organism,« either through immediate experiences or through associations. Responses lacking the defined characteristics remained outside the descriptive model. Such responses included aggressive autonomic responses, aggression in phantasy, and socially acceptable ways of treating a situation, such as nonaggressive exhortations concerning another person’s behaviour, proposed compromises, and deliberate restraint from aggression (indifference) e.g. by silence or withdrawal, provided that the affec-

division was based on the following qualities: aggression is turned outward (extrapunitivity), aggression is turned inward (intropunitivity), expression of aggression is avoided (impunitivity). Consequently, also nonaggressive responses were taken into account in this classification.
tive responses which may find expression in hostile facial gestures are controlled.

One dimension, called intensity of aggressive response, can be defined on the basis of the first mentioned characteristic of aggressive responses. Consequently, the quantity of the noxious stimuli following the response is a subjective experience of the observer.

The second characteristic refers to the relations between an aggressive response and social interaction. The observer may see the aim of the response on the basis of a succession of events (whether behaviour delivering noxious stimuli is a defensive response to a thwarting stimulus situation or an unprovoked offensive act). On the basis of the antecedent stimulus situation observations are made concerning the aim of the response (defensive/offensive), which constitutes another dimension describing responses.

In an examination of the relationships between an aggressive response and its target attention can also be paid to the degree of directness or indirectness of the response toward the target. A direct response reaches the victim immediately, an indirect one via mediating events or people or a mediating response. For example, complaining is one form of indirect aggression, since the noxious stimuli can be expected to reach the original target only after complaint. Aggressive responses can, accordingly, be described on the dimension direct/indirect.

If even more specific characteristics of a response are taken into account, the organ systems involved can be analysed. These may include different parts of the body, especially the limbs (physical aggression), organs of speech (verbal aggression), and facial gestures (mimic aggression). Aggression expressed in writing can also be considered verbal. Physical, verbal and mimic means of aggression can be called the modes of aggression.

The aim and direction of a response were considered independent of each other, i.e., both defensive and offensive aggression can be either direct or indirect. Each of the four forms of aggression (direct defensive, indirect defensive, direct offensive and indirect offensive aggression) can manifest itself with different modes of aggression and with different intensities. From these characteristics the writer has constructed a descriptive model shown in Fig. 1.

The basic vertical dimension is the intensity of aggressive responses. The criterion of the zero point is what is observed as aggressive. The cross section presents a description of the interpersonal qualities of the responses: aim (offensive/defensive) and direction (direct/indirect). The intensity, aim and direction of aggressive responses are
Figure 1. A descriptive model of aggression.

considered to be dimensionally varying characteristics (continuous variables), while the modes of aggression are regarded as discrete variables. The descriptive model can be used to analyse aggressive responses. For example, beating somebody for taking a favourite toy is a defensive, direct response using a physical mode. The position of the act of beating in the dimension of intensity is probably very far from the zero point, although an estimation of its intensity is lastly dependent on the actual quality of the response and on situational factors.
3. HYPOTHESES

3.1. Theoretical frame of reference

3.1.1. Functions of aggression

Definitions of aggression have often presented the idea that the intent or goal response of aggression is «an injury to another organism» (Dollard et al., 1939; et al.). When defining aggression behaviourally Buss (1961) omitted the concept of intent, but in the definition of the reinforcers of aggressive responses the intentionality of action was, however, revealed. Buss distinguished «two major classes of reinforcers of aggression: (1) the stimulus of the victim suffering injury or being in pain, and (2) extrinsic rewards» (p. 2). According to the differences between reinforcers aggression was divided into two types, of which angry aggression (or hostile aggression; Sears, Maccoby & Levin, 1957) is reinforced by the victim’s pain. Instrumentally aggressive responses are reinforced by external reinforcers following any instrumental action. Feshbach (1964) made further divisions: after laying special emphasis on intentionality in his definition of aggression, he distinguished, in addition to instrumental aggression, aggressive drive-mediated behaviour, and divided the latter into expressive (the desire to hit) and hostile (the desire to hurt) aggression.

In the present investigation the goals of aggression were defined as follows. An aggressive response is understood to be (1) fundamentally a response by means of which an attempt is made to secure that the basic needs to preserve and continue life, as well as the various derivatives of these basic needs, will be satisfied, the primary goal of the response being the elimination of the thwarting stimulus situation; and (2) a response habit, generalized from its original contexts
through learning, in which case aggressive responses have various secondary goals.

Correspondingly, there are both primary and secondary reinforcers of aggression, of which the latter maintain the kind of response habit defined above that cannot be considered as primary reactive aggression. These are discussed in the section dealing with the aim of aggression. The primary reinforcers of aggression are defined as reduction of stimulation, which is a consequence of the elimination of a thwarting stimulus situation. This reinforcer consists of an extrinsic and intrinsic aspect. The former is a consequence of desired changes in the stimulus situation, the latter of the recovery of the internal balance of the organism. Cues about the elimination of the thwarting stimulus situation are different, yet somehow or other are related to another person's submission and yielding. Patterson, Littman, & Bricker (1967) found out that »if the victim had reinforced the aggressor's behaviour by showing defeat and submission, and perhaps some injury as well, there was an increased chance that the aggressor would select the same aggressive response and the same victim, later on. It can be said that anything suggesting that the other person is injured, which, according to the studies by Bramel, Taub, & Blum (1968), et al., is found gratifying if a person is angry with someone, is connected with expectations of the victim's submission. On certain conditions, which are discussed later, the findings mentioned above may become essential conditioned reinforcers of aggression. Sears (1958), too, proposed that the motive to injure others is acquired through a process of secondary reinforcement. According to Scott (1958), in animal aggression injury to another organism is also desired only in some special case.

Lorenz (1963) made a distinction between fight-like contests between the members of different species and intra-specific aggression, aggression in the proper sense of the word. The latter is an essential part of the life-preserving organization of the instincts. In the preservation of life aggressive behaviour has important functions such as balanced distribution of the animals of the same species over the available environment, selection of the strongest by rival fights, and defence of the young. The extermination of the fellow-members of the species is not the aim of aggression, although the destructive effect of aggressive behaviour may manifest itself under exceptional circumstances.

1 English translations of the terms by Lazke (Lorenz, K. On aggression. London: Methuen, 1967.).
The concept of thwarting stimulus refers to the antecedents of aggression. In the experiments by Geen (1968) »pure« frustration (failing in a task) elicited less aggression than insult by a peer following success at a task. After studying the behaviour of mice, Lagerspetz & Nurmi (1964) have also shown that frustration is a weak antecedent of aggression; in the absence of another mouse frustration did not produce aggressive responses. The series of experiments carried out by Berkowitz during the last few years include many investigations of the antecedents of aggression. With his colleagues he has proved that (1) frustration does not usually elicit overt aggression in the absence of cues related to aggression (Berkowitz & LePage, 1967; Geen & Berkowitz, 1967); and (2) the target’s cue value for aggression determines the magnitude of aggression directed against him (Berkowitz & Geen, 1967). On the basis of these studies »pure« frustration cannot be considered a potent antecedent of aggression.

According to the view adopted within the present investigation subjectively experienced thwart in a stimulus situation eliciting primary aggression may be directed toward (1) the goal-oriented activities of an individual, provided that he has reason to suppose that frustration is caused by another person, or (2) the actual well-being of an individual. The latter is brought about through noxious stimuli, which, according to Buss (1961), include active attack and annoyers which are often simple, irritating or aversive sensory stimuli. Special stress is laid here on the importance of attack upon a person’s self as an antecedent of aggression, as had been done by Feshbach (1964) and Worchel (1960).

Experience of thwart follows cognitive appraisal of a situation, through which an individual can control not only his overt behaviour but also instigation to aggression (Brehm, Back, & Bogdonoff, 1964; Kaufman, 1965; Lazarus, 1966). When appraising a situation he may pay attention to (1) arbitrariness vs. nonarbitrariness\(^1\) of frustration and strength of the noxious stimuli; (2) social status (little child, competitor, authority), prevailing condition (ill, tired), or personality traits of the instigator; and (3) scene (public, important for the individual’s own goals). Evaluation of a stimulus situation as an intervening variable in aggressive behaviour has been considered important by Berkowitz (1962), Berkowitz, Lepinski, & Angulo (1969), Pepitone (1964), Feshbach (1964), Kaufman (1965), et al. Kaufman presented The Flow Chart for Aggressive Response based

\(^1\) Arbitrary frustrations lead to more aggressive responses than nonarbitrary frustration (Pastore, 1952; Cohen, 1955; Brown, 1966; et al.).
on Feshbach’s analysis, according to which mediating responses to aggressive provocation can be grouped to form four choice points: classification of a stimulus as aversive or as not aversive, initiation of a goal response (aggressive or nonaggressive), and continuation as well as completion of an aggressive or nonaggressive response.

Schachter (1964; Schachter & Singer, 1962) maintained that an individual’s emotional behaviour is not an immediate result of any autonomic changes; it is a consequence of an individual’s interpretation of his own internal reactions. Berkowitz et al. (1969, p. 300), however, have stated on the basis of their experimental study that within the limits of judged safety, appropriateness, and propriety, an individual wants to act in a way that is consistent with his conception of himself, i.e., that aggressive intentions are preceded by an individual’s interpretation of the connection between his internal reactions and external reality.

3.1.2. Direction of aggression: direct/indirect

In the construction of the descriptive model the direction (direct/indirect) of aggression was included. It is predicted that this dimension is related to the response habits of an individual through processes of inhibition of aggression.

In a thwarting situation the prototype of a child’s response is, as in animal behaviour, direct aggression, fighting and biting, until inhibitions adopted through child rearing come between stimulus and response and necessitate cognitive appraisal of the situation. In a thwarting situation a child may adopt a response habit by imitating models of behaviour or on the basis of selective reinforcement.

Emphasis laid on model learning is a consequence of recent behavioural approaches to aggression (Bandura & Walters, 1963; et al.), and it contradicts the catharsis hypothesis. On the basis of several investigations of hostility catharsis Berkowitz (1968) maintained that, in contradiction to the catharsis hypothesis, witnessed (e.g. film) aggression can heighten the chances that the observer himself will act aggressively: (1) The observer acquires new aggressive action patterns imitatively; (2) The film violence may lower restraints against aggression; (3) Stimuli (e.g. weapons) that have frequently been associated with a certain type of action are capable of evoking that response on later occasions; (4) Aggressive behaviour, even aggressive words, can furnish aggression-evoking stimuli. It was stated
also by Hartman (1969) that overall findings in his study contradict the catharsis hypothesis both in its classical and revised versions.

Experimental studies dealing with reinforcement history of aggressive behaviour (e.g. those by Davitz, 1952; Lovaas, 1961; Cowan & Walters, 1963; Walters & Brown, 1963; Brown & Elliot, 1965; Loew, 1967; Kotkin, 1968) have shown that the strength of aggressive habits readily depends on reinforcement, and that reinforcement of one kind of aggression (e.g. verbal) increases other kinds of aggression (non-verbal). Other investigations concerning reinforcement history have concentrated on the relationships between parents’ child-rearing practices and children’s behaviour. These relationships have proved rather complex. Interpretational frameworks vary, too. On the basis of the results it can be concluded that a child’s aggression is increased by a high degree of both permissiveness and punishment (Glueck & Glueck, 1950; Sears et al., 1957, 1965; Bandura & Walters, 1959; McCord, McCord, & Howard, 1961; Eron, Banta, Walder, & Laulicht, 1961; Eron, Walder, Toigo, & Lefkowitz, 1963; et al.).

Relatively unchanged characteristics of behaviour determining the strength of aggressive habits were called by Buss (1961) temperament variables. They include impulsiveness, activity level, intensity of reaction and independence. Empirical studies (Jersild & Markey, 1935; Green, 1933; Dawe, 1934; Must & Sharpe, 1947; Sears et al., 1953, 1965; Kagan & Moss, 1962; Takala, Hagfors, Pitkänen, & Ruoppila, 1964; Walker, 1967; et al.) have shown that aggression correlates positively with general activity.¹ This correlation is higher when the individuals studied are younger.

The dimensions in the descriptive model presented above may be stressed differently in the combined variable of aggression and it is not possible to compare different studies in this respect. Within the present investigation the assumption has been made that the direction of aggression is related to reinforcement history of aggression, and, consequently, to cognitive appraisal of the situation in the following way. If aggressive behaviour is permitted, the strength of the habits of direct aggression is increased, and there is but slight consideration of nonaggressive alternatives. On the other hand, if adults’ responses

¹ Arousal heightened experimentally (by a noise stimulus) has also been found (Geen & O’Neal, 1969) to increase the probability that a person will react aggressively to aggressive stimuli. On the basis of the conflict model another kind of assumption can be made: »If aggressive response tendencies are inhibited, there should occur an increase in the overt expression of aggression at some stage of decreased arousal« (Takala & Pitkänen, 1963, 121).
to aggression are extremely punitive, direct aggression is inhibited. The models of aggression provided by punitive behaviour do not, however, result in consideration of nonaggression; an attempt is made instead to vent the emotional state, i.e. anger, instigated by the situation, by means of less inhibited, indirect aggressive responses (Sears et al., 1957, 1965; Bandura & Walters, 1959; et al.). Compared with direct aggression, changes take place either in the target of aggression or in the aggressive responses.  

1. Stimulus generalization; the spread and displacement of aggression toward a substitute object.

b) Response generalization; a change in the response to the original target. A less direct response is substituted for a direct aggressive response.

Some part of each form of indirect aggression can be interpreted as an outburst of anger which may manifest itself in the following way. Aggression is directed toward a target other than the instigator (toward objects in the environment or persons, not subjected to inhibition), or the prevalence of negative affect is shown towards the original target, although the response is known to be ineffective as far as the goal is concerned. Another part of indirect aggression can be interpreted according to the dissonance reduction model (Festinger, 1957). The negative experience of being a victim is more tolerable, if it is possible to treat as a victim someone else, or the original instigator via a mere mediating response, e.g. by destroying his property.

Factors concerning long-term child rearing and education are not the only cause of indirect aggression; under certain social circumstances it may caused by inhibition of direct aggression as a consequence of situational factors (e.g. an individual is unable to defend himself against arbitrary behaviour). Inability to defend oneself is assumed to have the following causes: within his group an individual

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1 The concept of displacement has been used in different senses. Dollard et al. (1939) have assumed that the tendency to be aggressive remains active in an individual until he finds a suitable object or scapegoat. The choice of the object has been explained by Miller (1948, 1959) on the basis of the approach-avoidance conflict. Lorenz (1963) has extended the interpretation of »displacement phenomena» so as to cover also »displacement activities«: the original tendency can be displaced, not only to another object, but to another activity, quite different from the original. According to Bindra (1959) »displacement phenomena» can be interpreted in terms of three factors: arousal level, habit strength, and sensory cues, which implies that aggression toward a substitute object is likely to occur only if it is one of the activities connected with this object.
may be younger, physically weaker, or equipped with a lower intellectual capacity than the average, or his habits of communication with others of the same age may be weak. In a thwarting situation direct aggression is inhibited because on the basis of his earlier experience he anticipates counter-aggression delivering noxious stimuli. Appraisal of the situation results in inhibition of aggression, but recurrence of arbitrary frustration and noxious stimuli instigates aggression, which can be assumed to culminate in the various outbursts described above.

The learning of indirect display of aggression is due to both previous experience and immediate situational factors. Within the present investigation an attempt was made to find out the relationships only between immediate situational factors and indirect aggression.

3.1.3. Aim of aggression: defensive/offensive

The defensive/offensive aim of aggression was included in the descriptive model as the second hypothetical dimension.

Defensive aggression, like direct aggression, was considered primary aggression, the goal of which is the elimination of a thwarting stimulus. When direct defensive aggression is inhibited, the response in a stimulus situation can be indirectly aggressive. Reinforcement increases the probability that a particular response is repeated in a new situation of the same kind. In addition, responses are generalized to various stimulus situations and the anticipatory cues preceding them. This is reflected in a lowering of the threshold of aggression, etc.

In defensive aggression the kind of stimuli often associated with the primary reinforcers develop into secondary reinforcers through the process of conditioning and thus become the aim of aggression. Such aims include an injury to another organism, self-assertion (e.g. attention-getting, etc.). Consequently, a thwarting stimulus situation is not a necessary condition for emitting an aggressive response. After secondary reinforcers have been developed they may elicit an aggressive response without drive. An individual learns to anticipate, on the basis of cues present in stimulus situations, when secondary reinforcement is probable, and he behaves in the habitual (directly or indirectly) aggressive manner. The aim of aggression is offensive, because it is not anteceded by a thwarting stimulus situation, which would make it possible to interpret the aim of the response as defensive.

The interpretation is consistent with Spence’s (1956) modification of the S-R theory. The impetus to respond is determined by drive
and/or reinforcement by the equation \( s_E = (D+K) \times s_H \); \( s_E \) = excitatory potential, impetus to respond; \( D \) = drive; \( K \) = incentive motivational factor determined by frequency and amount of reward; \( s_H \) = habit strength determined by the number of times a response has occurred in the presence of a stimulus. The summativity of \( D \) and \( K \) implies that a response is possible even if one of the determinants is absent (e.g. \( s_E > 0 \) if \( K > 0 \), although \( D = 0 \)).

The concept pair defensive/offensive is not parallel to the concept pair angry (or hostile)/instrumental aggression. It is assumed that offensive aggression is maintained by reinforcers similar to those maintaining the kind of aggression customarily defined as instrumental, but injury to another organism, a usual criterion of angry aggression, is also considered to be a reinforcer of offensive aggression. Correspondingly, defensive aggression, and direct aggression in particular, can appear without any emotional reaction or intent to injure another organism.

The temperament variables (p. 34) correlating with total aggression may influence the development of the habits of offensive aggression in two ways. Social activity increases the potential frequency of conflicts. Slight appraisal of a thwarting stimulus situation is reflected in impulsive response usually related to the amount of direct defensive aggression which contributes to the development of secondary reinforcers.

The habits of offensive aggression can also be acquired through operant conditioning (Skinner, 1953). Particularly those who respond easily in social situations and imitate other people's behaviour may notice that certain kinds of (aggressive) responses are often followed by the same kind of stimuli, which, when repeated, obtain reinforcing value. This form of offensive aggression can be regarded as tyrannising aggression learnt during early childhood. The longitudinal study by Schaefer & Bayley (1963) showed that the amount of tyrannising aggression in the behaviour of adolescent boys correlated positively with their mothers' emotionally involved behaviour (overindulgent over-protection) at the time when the boys were 0—3 years old. Difficulties in the treatment of the child may result in the mother's reactions to her child becoming hostile (ignoring, punitive), as can be concluded from the studies by Schaefer & Bayley and also by Kagan & Moss (1962). As a circular effect the boys' offensive aggression is motivated by secondary reinforcers. This is analysed in more detail in the following paragraphs.

It has been proved that both punishment and ignorance increase the total amount of a child's aggression (cf. p. 34). According to
Bandura & Walters (1959), both of them cause dependency frustration. Attention and power obtained by aggressive behaviour are then found to be stronger reinforcers than when the relations between the child and his parents are harmonious and secure. In the studies by Wiggins & Winder (1961), Siegelman (1966), Sears et al. (1953), and Emmerich (1966), aggression and dependency correlated positively; the common variance was interpreted as attention-getting.

The assumption that the habits of offensive aggression depend on the relations between parents and children is based on the subjective value of secondary reinforcers. According to Rotter's (1954) theory of social learning »a person's experiences (or his interactions with his meaningful environment) influence each other . . . New experiences are a partial function of acquired meanings . . . » (postulate 5). The consequences of aggression are found subjectively to be more valuable, if aggression leads to goals which otherwise remain unachieved. Secondary reinforcers may give aggression a positive value (Expectancy x Value theory of motivation; Atkinson, 1964), which exceeds the intensity of the negative value ensuing from the fear of consequences and affects the action tendency that pursues reinforcers. In a corresponding situation the response of some other individual may be inhibited, because the negative value is stronger than the positive one.

In addition to parental behaviour the general social background of an individual, e.g. a low socio-economical status,¹ may cause deprivation and feelings of inferiority, which give a positive subjective value to secondary reinforcers.

Defensive and offensive aggression are not supposed to be independent of each other in an individual's behaviour, because offensive aggression is thought to be acquired partly through defensive aggression; i.e., those who offend aggressively also defend themselves aggressively. In Mandel's factor analytical study severe spontaneous and reactive aggression together constituted the factor »Faktor der Feindseligkeit.« All of those who defend themselves aggressively are not, however, expected to adopt offensive aggression, if background factors do not lead to the pursuit of secondary reinforcers. Aggressive defence, e.g. against somebody else's aggressive offence, is generally considered acceptable in our society, and, especially when attempting to guide the sons to behave in a socially desirable way, parents may teach discrimination between just defence and unjust offence. Consequently, it can be assumed that in the boys' behaviour defensive

¹ Children from lower class backgrounds have tended to be more aggressive than children of upper class origins (Falk, 1959; Toigo, 1965; et al.).
aggression independent of offensive aggression correlates with socially acceptable general activity more highly than offensive aggression. The latter is assumed to correlate with less controlled, impulsive general activity. The dual nature of extraversion has been discovered by Eysenck & Eysenck (1963).

3. 1. 4. Mode of aggression

In previous classifications of aggressive responses the most usual categories have been physical and verbal aggression, although, according to correlational and factor analytical studies, these modes of aggression correlate rather highly with each other. This dichotomy is, to some extent, speculatively relevant in regard to interindividural differences in aggression; in addition to the differences in the organ system involved, the division into physical and verbal aggression implies differences in the noxious stimuli delivered to another organism (Buss, 1961) and in the process of socialization (Goodenough, 1931; Bandura & Walters, 1959). Physical aggression represents the most primitive and uncontrolled mode of response in a thwarting situation. It includes aggression expressed by different body parts (limbs, teeth) or weapons against other people, or, in the case of indirect aggression, against the other environment (animals, objects). The consequences of these responses are experienced as a feeling of pain or observed as destructiveness. The severity of the consequences determines the intensity hierarchy of the responses. Another person's negative attitude toward physical aggression forces a child to make discriminations between the intensities of different responses in a stimulus situation at a very early stage.

When a child's means of expression develop, it becomes possible to show aggression verbally. The intensity of the noxious stimuli delivered by verbal aggression cannot be as easily graded as that of the noxious stimuli delivered by physical aggression, because in the first case injury is more disguised or less immediate by nature. Verbal aggression can manifest itself e.g. as direct demands concerning the other person's behaviour, or as more indirect expressions of negative affect, i.e. anger. In addition to the physical and verbal modes of aggression, there occurs mimic aggression, which means expressions of discontent and anger by means of facial and other gestures. From the properties of noxious stimuli delivered by mimic aggression, this mode of aggression can be considered in general as more moderate and less direct than physical and verbal aggression.

Each mode of aggression consists of various specific responses,
which may appear either directly or indirectly, either in defensive or offensive aggression. The aim and direction of aggression are assumed to account first of all for interindivdual differences in aggression and only after that for the mode of aggression; in the choice of response it can be considered more important whether an individual defends himself (offends) aggressively at all, and if he does, whether he does it directly or indirectly. The mode of aggression is presumably chosen after this, and it is probably even more dependent on the characteristics of the stimulus situation than the direction of aggression.

Buss (1961) has assumed that an individual's preferred mode of aggression corresponds to his response style, e.g., a person who attacks physically is also dominantly physical in other areas of behaviour. Physical fitness could then be related to the preference for the physical mode of aggression. The assumption was supported indirectly by the finding that the school mark in gymnastics and sports correlated positively with total aggression (although academic achievement otherwise correlated negatively with it; Takala et al., 1964), in which physical aggression was probably stressed rather heavily, because aggression was measured by global rating.

Correspondingly, the assumption can be made that the preference for the verbal mode of aggression is related to verbal abilities. This assumption was supported indirectly by Jersild & Markey's observations (1935) that verbal aggression correlates slightly with intelligence, in which verbal abilities probably played an essential role because of the measurement technique.

Both of these modes of response represent a more active way of responding than mimic aggression. It can be assumed that the habits of physical and verbal aggression correlate more highly with general activity in behaviour than the habit of mimic aggression.

As mentioned in Chapter 2, the descriptive model of aggression excluded a number of such response types which lack the qualities of aggressive response, e.g. responses showing anxiety or socially acceptable ways of treating a situation. Their relations to aggression through the inhibitory and controlling mechanisms they involve, as well as to other personality variables are analysed both speculatively and empirically in the second part of the report.

3.1.5. Dependence of global rating of aggressiveness on different forms of aggression

Aggression represents the violent manner of problem solving regardless of the form in which it manifests itself. It has been assumed earlier
that the preference for aggression rather than nonaggression is related to certain personality variables such as impulsiveness and general activity, and also to the kind of social background variables that are unfavorable for the learning of socially acceptable behaviour. Although it is assumed that individuals' aggressive habits are differentiated in accordance with the descriptive model, at the level of the second order factors aggression is assumed to be relatively unidimensional. There are individuals who very seldom respond in any aggressive manner: this results in a positive correlation between different forms of aggression, even though the observed aggressive responses are rather independent or may substitute each other.

In global rating the different forms of aggression are not assumed to be emphasized similarly; the assumption is made that the ratings are determined by the observability of the form of aggression most typical of each individual. Observability is determined partly by the observer's role within a group (personal involvement in the response), partly by the frequency of aggression as well as its non-acceptability in regard to the noxious stimuli and target.

In the study by Banta & Walder (1961) the best indicators of the general aggression factor were the peer-rating items referring to initiated interpersonal harm (in the terminology used in this report: offensive aggression), to retaliated interpersonal harm (indirect aggression), and to socially undesirable dominance behaviour. In the study by Lesser (1959), popularity within a peer group, which usually correlates negatively with total aggression, correlated with different manifestations of aggressive behaviour in the following way. »Provoked Physical Aggression [defensive] is relatively approved behaviour, Outburst Aggression, Unprovoked Physical Aggression [offensive] and Verbal Aggression [including both defensive and offensive aim] are progressively more disapproved, and Indirect Aggression is strongly disapproved« (p. 25).

It can be, therefore, assumed that global rating of aggressiveness is most strongly determined by the amount of indirect and offensive aggression, and only rather slightly by direct defensive aggression.

Besides the forms of aggression, situational variables may also affect global rating of aggressiveness. It can be assumed that the norms or expectations concerning behaviour in different situations are the most frequent situational factors determining the impression of aggressiveness.
3.1.6. Effects of situational variables on aggressive behaviour

Both in estimation of thwart and choice of response an individual takes advantage of his earlier experiences in corresponding situations. This has been called above the process of cognitive appraisal intervening stimulus and response. The noxious stimuli an individual delivers to another organism do not always have the same form or the same intensity; the frequency and intensity of aggression vary significantly, for example, according to the power of the attacking individual (Graham, Charwart, Honig, & Weltz, 1951). The study by Must & Sharpe (1947) showed that younger children are subjected mostly to verbal demands, and according to Spache (1951), boys tend to project hostility upon the environment when in conflict with adults, but toward the other person when the frustrator is a child. In the study by Pitkänen (1963) four factors were extracted from the items of a story completion test. Of these two could be interpreted on the basis of the target of aggression. The first factor contained aggression against peers, the second factor contained conflicts between authority figures and a child. In conflicts between boys and girls boys are usually offensive (Jersild & Markey, 1935).

Children have conflicts mostly with those of the same sex and age (Dawe, 1934; Walters et al., 1957). This is perhaps explained both by the copiousness of contacts and by the competition between those of the same size which corresponds to struggle between the members of a society for ranking order (also found in animals; Lorenz, 1963). Approximately as many conflicts occur with younger individuals as with older ones (Dawe, 1934). Aggression toward adults is relatively infrequent (Jersild & Markey, 1935; Graham et al., 1951; Cohen, 1955). One child does no behave aggressively toward one person only; the number of different targets correlates highly with the frequency of quarrels (Dawe, 1934). The amount of aggression toward adults and toward peers correlate positively, if not very highly (Jersild & Markey, 1935; Bandura & Walters, 1959).

Different situations require different degrees of control of behaviour, which in children's aggression can be defined by, for example, using the criterion of how condemnable direct, defensive, physical aggression is. Punishments following responses are conditioned to stimuli, which receive a behaviour-controlling function. In the present investigation the following terminology has been used. The more condemnable an aggressive individual considers direct, defensive or physical aggression to be in a certain situation, the stronger the con-
trolling stimuli are said to be. To shorten the expression, the term weak/strong situational control is used here.

Situational control is supposed to affect both the average frequencies of different forms of aggression and the structure of aggression, as is explained in more detail in the specification of hypotheses.

3. 2. Specification of hypotheses

Hypotheses to Problem A (p. 14)

In accordance with the descriptive model of aggression it is predicted that, with the employment of the method of factor analysis, (1) the main proportion of the variance of interindividual differences in aggression is accounted for by the direction (direct/indirect) and aim (defensive/offensive) of aggression.

(2) The modes of aggression (physical, verbal, mimic) can account for the variance in a further analysis of the main forms of aggression.

(3) Different aggressive habits intercorrelate positively and combine in the second order factor into a general factor of overt aggression.

Hypotheses to Problem B

On the relationships between background variables and aggressive habits it is predicted that

(1) The direction of aggression is related to individual characteristics such as affect an individual’s abilities to defend himself within his social group. If an individual is younger, physically weaker, or equipped with a lower intellectual capacity than the average, or if his communication habits with others of the same age (which can be estimated from the number of children in the family, general activity, and popularity within the group) are weak, his habits of indirect aggression are stronger than those of an individual who is very capable of defending himself.

(2) The aim of aggression is related to individual variables such as reflect strong or weak control of behaviour, and to social background variables such as reflect an approximate magnitude of experienced deprivations. If an individual is impulsive, if the socio-economical status of his family is low, or if the parents’ attitude toward their child is indifferent, his habits of offensive aggression are stronger than those of an individual whose general activity is controlled and socially desirable, and if the social background variables are favourable.

(3) Physical fitness correlates more highly with physical than with
verbal or mimic mode of aggression, verbal abilities more highly with verbal than with physical or mimic mode of aggression, and general activity more highly with physical and verbal than with mimic mode of aggression.

Hypotheses to Problem C

It is assumed that global rating of the trait of aggressiveness is determined primarily by (1) the amount of offensive and indirect aggression, (2) their background variables, and (3) the amount of total aggression directed toward persons and occurring in situations such as generally require strong control of behaviour.

Hypotheses to Problem D

Situational control is assumed to affect both (1) the frequencies of different forms of aggression and (2) the structure of aggression, particularly through the direction of aggression. It is assumed that
(1 a) all forms of aggression considered, more aggression appears with weak than with strong situational control;
(1 b) there appears proportionally more direct (defensive and offensive) aggression with weak than with strong situational control;
(1 c) there appears proportionally more indirect (defensive and offensive) aggression with strong than with weak situational control;
(2 a) with the employment of the method of factor analysis more differentiation takes place in interindividual differences in direct (defensive and offensive) aggression with weak situational control than when the factorial structure is based on average frequencies of aggression independent of situational variables (Problem A);
(2 b) more differentiation takes place in interindividual differences in indirect (defensive and offensive) aggression with strong situational control than when the factorial structure is based on average frequencies of aggression independent of situational variables.
4. EXECUTION OF THE INVESTIGATION

There are both quantitative and qualitative differences between children’s and adults’ behaviour. In the present investigation the uniformity of overt aggression was examined on the basis of the behaviour of boys aged 5—6, because aggression is more spontaneous and perceptible in children than in adults, and because the background variables determining the strength of aggressive habits may be found more directly in children.

The choice of the population was partly determined by the attempt to form a homogeneous group of subjects the behaviour of whom could be observed in different situations of social interaction. According to Buss (1961), findings concerning the relationship between age and the amount of aggression are inconsistent (examples of observed positive, negative and zero correlations: Must & Sharpe, 1947; Jersild & Markey, 1935; Roff & Roff, 1940; et al.). The inconsistency of the results can at least partly be understood as a consequence of the diversity of the aggression variables in different studies and of the use of the sum scores. Yet the conclusion that the amount of aggression attains a rather steady frequency at the age of 4—5, and that relatively few changes take place until the age of 8 seems quite reliable. Information about stability of aggression has been provided by the longitudinal study by Kagan & Moss (1962) in which the stability correlations of the aggression variables between the age periods 3—6 and 6—10 were very significant. The age range of the population was limited to 5 and 6 years in the present study. The choice of the subjects was confined to boys. The development of aggressive motivation as well as manifestations of aggression differ to some extent for boys and girls (Goodenough, 1931; Jersild & Markey, 1935; Must & Sharpe, 1947; Meyer & Thompson, 1956; Lansky et al., 1961; Kagan & Moss, 1962; Sears et al., 1965; Mallick & McCandless, 1966). As the main emphasis in this investigation was on the explication and examination of the descriptive model of aggression, comparison of the differences between the sexes was excluded.

An analysis of specific responses presupposes detailed observations of the subjects’ behaviour in different stimulus situations. To ensure the comparability of the observations the subjects’ behaviour should be observed and rated by relating the characteristics of an individual with the average characteristics of the population. A possible procedure is to observe an individual as a member of a group, after a great number of observations has been made of the
behaviour typical of the group. Within the present investigation the social reference was a kindergarten.

4.1. Method

Techniques for the assessment of overt aggression in children, employed in previous studies, have included time-sampling observation, by recording either all of the behaviour of a child in his aggressive contacts with other persons (Jersild & Markey, 1935; et al.), or the frequencies of certain variables chosen in advance (Koch, 1942; et al.), teacher rating (Emmerich, 1966; et al.), later ratings based on recordings (Kagan & Moss, 1962; et al.), detailed diaries kept by mothers (Goodenough, 1931), interviews with parents (Bandura & Walters, 1959; et al.), interviews with subjects (Bandura & Walters, 1959), self-ratings (Sears, 1961; et al.), or various equipments in experimental studies (Buss, 1963; Williams et al., 1967; et al.). The technique employed in this investigation was teacher rating in kindergartens. As the purpose was to examine the structure of aggression, teacher rating was considered to have certain advantages compared with time-sampling observation. Because of the teachers' long-term personal knowledge of the subjects, information was obtained about less usual forms of aggression, which was not expected to differentiate individuals on the basis of time-sampling observations, as shown by some previous studies. Apart from its value for practical reasons, this way of gathering material made it possible to obtain a sample large enough for analysis of results through the factor analysis model and representative enough for conclusions to be drawn.

In order to reduce the error variance as greatly as possible (Cattell, 1957, 63—68), attention was paid to the following points. (1) To increase reliability one month was allowed for observation of the children before rating. (2) The variables were defined concretely. (3) To weaken the halo effect the teachers were instructed to rate one variable at a time. (4) To randomize the error variance due to rating the subjects were chosen from many (26) kindergarten groups, so that the number of observers was also 26. (5) To ensure that the observations made by one teacher would be organized within some kind of framework yet without making the task too difficult, it was decided that each teacher should rate 7—10 children. (6) Ratings concerning the frequency of aggression were given in seven-point time scales, thus eliminating ambiguity in the meaning of the scales. (7) A preliminary study secured comprehensibility of the task and instructions, form of items, and appropriateness of the rating scales.

In addition to the frequencies of the aggression variables the teachers rated the target and scene of a response for each aggression variable, certain personality variables, and social background variables.

4.2. Variables

Problem A. Correspondence between the descriptive model of aggression and interindividual differences in behaviour. The aggression variables (32) were chosen on the basis of the categories of aggression in previous studies (Dawe,
1934; Jersild & Markey, 1935; Koch, 1942; Sears et al., 1953; Walters et al., 1957; Mandel, 1959; Eron et al., 1961; et al.), and the preliminary observations in a kindergarten. It was considered essential that the variables chosen should represent different forms of aggression in accordance with the descriptive model of aggression (Fig. 1, p. 29). In order to reduce the number of variables, specific responses of the same kind and with corresponding implicit intensities were combined. The variables are presented in Appendix A. 1, grouped according to the following categories of aggression composed on the basis of the descriptive model and the theoretical frame of reference.

I Direct defensive aggression
   1. Physical mode of aggression
   2. Verbal mode of aggression
   3. Mimic mode of aggression

II Indirect defensive aggression
   1. Stimulus generalization
   2. Response generalization

III Direct offensive aggression
   1. Physical mode of aggression
   2. Verbal mode of aggression

IV Indirect offensive aggression
   1. Physical mode of aggression
   2. Verbal mode of aggression

All of these forms of aggression do not manifest themselves with equal frequency in children’s behaviour, wherefore different categories in the sampling of variables were not deliberately made to be of the same size.

In the definition of the antecedents of defensive aggression the two types of thwart (p. 32) were taken into account, viz., the instigator of defensive aggression is a person (X) who has been found to frustrate the goal-oriented activities of an individual or to attack him. Offensive aggression toward a person (Y) is unjust on the basis of a succession of observed events.

The instructions for rating were as follows: »Look up boy number 1 on the subject list. Try to remember how often you have observed him behave as described first on the list of variables (Tries to hurt X, e.g. by hitting, kicking or throwing something.). Mark his code number 1 on the first line of the rating sheet in the space you find appropriate».

The graphic scale was as follows:

| never | once a school term | once a month | once a week | once a day | many times a day |

After this the code number of the second subject was to be written on the scale, etc., until the first variable had been rated for all subjects. Then the second variable was treated correspondingly, and the ratings were placed on
the second scale of the rating sheet. The reliability of the ratings was estimated by a preliminary study. The subjects were twelve boys in a whole-day course of a kindergarten. The teacher of a whole-day course is not the same in the morning and in the afternoon. The ratings of the two teachers correlated +.21—+.97 for each variable, the median being +.75. The size of the correlation seemed to be positively related to the observability of a response. The inter-rater agreement, calculated from the sum scores over all the variables of aggression, was +.90.

Problem B. Dependences of aggressive habits on personality and social background variables. The dependent variables consisted of factor scores for the aggression factors obtained in the study of Problem A. The independent variables consisted of 7 personality variables and 12 social background variables (Appendix A.1), chosen in accordance with Hypothesis B. The personality variables were measured by kindergarten teachers' ratings. The ratings were written down on a graphic scale according to the following instructions: »Look up boy number 1 on the subject list and try to estimate, for the first variable on the list, his rank order in a group of 100 boys aged 5—6 who have been your pupils. Mark your rating on the rating sheet on the line corresponding to the question number, by writing the subject's code number in the space you find appropriate.

1. 10. 20. 30. 40. 50. 60. 70. 80. 90. 100.

(1—10 = feature prominent; 90—100 = feature very slightly perceptible. Middle point of the scale at 50 for bipolar traits, e.g. active/passive; 1—10 = very active; 90—100 = very passive.)»

In the preliminary study the trait ratings of the two teachers correlated +.71—+.86. The social background variables consisted of filed information and such estimations concerning the children's home conditions as the teachers were supposed to know about. In the preliminary study the teachers' ratings concerning the socio-economical status of a family revealed the lowest correlation (+.32). For other variables the inter-rater agreement varied +.63 — +1.00.

Problem C. Dependence of global rating of aggressiveness on rates of aggressive habits and background variables. The dependent variables consisted of 5 variables for aggressiveness judged according to a general impression (Appendix A): aggressiveness, frustration tolerance, position in the dominance hierarchy (teased by others; feared by others), and motivation of aggressive behaviour. The first four variables were rated by using the graphic scale expounded in Problem B. In the preliminary study the ratings of the teachers correlated +.86—+.93. The motivation of aggression was rated on the basis of two alternatives. The inter-rater correlation was +.66.

The independent variables consisted of three groups of variables: factor scores for the aggression factors (Problem A), those for the factors of the background variables (Problem B), and those for the factors of the situational variables. The thirdly mentioned scores were based on ratings concerning the target and scene of aggression described in Problem D.

Problem D. Effects of situational factors on aggressive behaviour. Situational variables were grouped according to the scene (free play period outdoors, free
play period indoors, period of directed activity or formal group work) and
target (teacher, taller boy, boy of the same size, smaller boy, girl) of aggression.
The material was gathered together with the ratings of the frequencies of
aggressive responses (Problem A) in the following way. For each variable the
kindergarten teacher estimated, subject by subject, which persons the response
in question had been directed against, and what kind of situation it had occurred
in.

The instructions were as follows: »Try to remember who this boy has be-
haved towards in the manner described first on the list. If the target has been
mainly a particular person or some particular persons of the mentioned
alternatives, mark number 2 on the first row of the set of squares on this child’s
rating form. If he has behaved in this particular manner toward other persons
as well, mark number 1 in the corresponding squares. If you have never observed
him behave in this particular manner toward one or some of the persons
mentioned above, mark 0 for each of them. Describe similarly in what kind
of situation this boy has behaved as described. If he has behaved so mainly
in one of the situations mentioned, mark 2 in the corresponding square. If he
has behaved so in other situations as well, mark 1 in the corresponding squares.
If he has never behaved so in one or some of these situations, mark 0 in the
corresponding squares.

Note. 2 can be given even though the behaviour in question were more
uncommon to him than to other children, if you only think that it has been
directed toward a certain group of people or occurred in a certain situation.
If the child has behaved as described toward all of the mentioned groups of
people instead of mainly one, or in all kinds of situations instead of mainly one,
1 can be written in every square.

After pupil 1 has been rated for the frequency, target and scene of the first
described behaviour, pupil 2 is rated similarly, etc., until all of the ratees have
been described. After this the second behaviour on the list is rated, etc., until
all of them have been rated in the same way».

The set of squares for rating was as follows:

<table>
<thead>
<tr>
<th>T</th>
<th>TB</th>
<th>SSB</th>
<th>G</th>
<th>SB</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>3</td>
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</tbody>
</table>

T = teacher
TB = taller boy
SSB = boy of the same size
G = girl
SB = smaller boy

<table>
<thead>
<tr>
<th>O</th>
<th>I</th>
<th>DA</th>
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<tbody>
<tr>
<td></td>
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O = free play period outdoors
I = free play period indoors
DA = period of directed activity or
formal group work (e.g. meals, periods
of creative expressions, play and music)

In the preliminary study the inter-rater agreement in ratings for each target
and scene of aggression were estimated on the basis of the sum scores of the
columns. The coefficients varied +.66 — +.90. The rating of teacher was least
reliable among the targets and that of free play period outdoors among the
scenes. The former is perhaps due to differences in a child’s responses to
different teachers, the latter to the extensiveness of the field of observation
compared with indoor situations.
4. 3. Subjects and procedures

The population of subjects consisted of boys aged 5—6 in the Finnish kindergartens during the spring term of 1964, and the population of raters of their teachers. All kindergarten teachers were catalogued. The population of teachers was stratified according to the geographical member associations. A random sample was taken from each stratum, the number of teachers in each sample being proportional to the total number in the stratum.

Thirty-two teachers were asked by letter whether they would be willing to take part in the study. Four teachers refused. The conditions for inclusion in the final sample were that the teacher had worked with her group at least six months and that the group included at least 7 boys aged 5—6. The teachers excluded from the sample (11) were replaced by new representatives from the corresponding strata. If the list of pupils sent by a teacher revealed that her group included more than 10 boys aged 5—6, the subjects were chosen at random.

After the teachers had returned the premilary inquiry forms and after they had been included in the sample, they were sent the rating forms and a note informing them that they would be paid 4 mk per subject. About the same time there was an article in Lastentarba (Kindergarten; the publication of the National Association of Kindergarten Teachers), signed by the chairman of the association, in which all members were encouraged to take part in the study. One month was allowed for the ratings. Two teachers failed to return the forms.1 26 teachers returned the forms filled in as requested. These teachers had graduated during the period 1935—1963 (median 1955), and seven of them were principals. The total number of children in their groups varied 20—26. The groups included 10 half-day courses, 12 whole-day courses, and 4 mixed courses. These differences between the courses were not likely to have any effect on the ratings of the frequencies of aggressive responses, since the teachers of the whole-day courses work on morning and afternoon shifts, and thus did not have any more time than the teachers of the half-day courses to make daily observations of the children.

The number of subjects per teacher was 7—10, the total number being 216. The average age of the subjects was 6 years 1 month.

4. 4. Analysis of results

The inner structure of aggression (Problem A) was examined by the technique of factor analysis at three levels: 1) primary factor composition of all aggression variables (Appendix A. 1); 2) factor compositions of direct, indirect, offensive, and defensive aggression separately; and 3) second order factor composition of the primary factors. The correlations were calculated as product-moment coefficients from normalized scores. The factor analyses were carried out by the principal-factor method (Harman, 1960), and the rotations by the varimax method (Kaiser, 1958). The primary factors were also rotated by the method of analytic cosine rotation (Vahervuo & Ahmavaara, 1958). All the

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1 Altogether 43 (32+11) teachers received the first inquiry. Of these 6 (4+2) refused.
operations except the analytic cosine rotation were carried out by the IBM 1130 computer.

Dependences of aggressive habits (described at the factor level in terms of the factor scores for the primary factors) on personality and social background variables (Problem B) were studied by the linear regression analysis method (Cooley & Lohnes, 1962; SSP library program 1.3.). Prior to the regression analyses the background variables were intercorrelated, factor analysed, rotated, and transformed into factor-level variables by means of factor scores. The factor scores were computed by the »short« regression method (Harman, 1960; IBM SS library program 2.2). This program does not yield formulae for factor scores, which makes replication of the study difficult. The procedure was selected, however, because the scale scores, on the basis of which the results had been analysed earlier by the writer (Pitkänen, 1966), intercorrelated so highly that interpretation of the relations between aggression factors and background variables proved to be problematic.

Dependences of global rating of aggressiveness on the ratees' aggressive habits (Problem C) were studied by linear regression analyses. A canonical analysis (Cooley & Lohnes, 1962) was performed for the description of the trait-rating variables in terms of different groups of variables (factor scores for the aggression variables, background variables, and situational variables).

Effects of situational variables on the frequencies of aggressive responses (Problem D) were examined from the distributions of the scores obtained through teacher rating. The correspondence between the aggression factors for the rated frequencies of aggressive responses over different situations (the primary factors) and those for each situational variable was investigated through a symmetric transformation analysis model (Mustonen, 1966). Eight intercorrelation matrices were calculated, one for each of the eight situational variables, on the basis of the teachers' ratings (p. 49). These matrices were factor analysed and rotated. Each rotated factor structure was compared with the rotated primary factor composition (point 1, above) through transformation analysis.

The operations were carried out by the IBM 1130 computer in the Computer Center of the University of Jyväskylä, with the exception of the canonical analysis, which was performed by the IBM 360/30 computer at the Finnish State Computer Center, and the transformation analysis, which was carried out by the Elliot 803 computer in the Computer Center of the University of Tampere.