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Implications of Memory Research for Criminal Law Procedure

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Implications of memory research for criminal law procedure

The assumption underlying my research program is that the efficacy of the judicial system is related to how well that system matches the capacities and competencies of its users. My research strategy has been to analyse the judicial process into its components and then to examine the ability of persons to fulfill the requirements of these components. Most of the research which I have completed in this program bears on two main areas of the judicial process: (1) perceptual and memory requirements and abilities of witnesses; (2) perceptual and memory requirements and abilities of the jury (or judge). In addition I have examined another aspect of the judicial system, namely, the question of determining the age of criminal responsibility.

Arising from this research one paper has already been published (Thomson, 1984), two papers have been accepted for publication (Thomson, in press; Thomson & Watson, in press), another is in preparation. In addition, findings of my research have formed the basis for papers presented at conferences and talks given at the Law Faculties of University of Melbourne and Monash University, and for the reading course for barristers in Melbourne.

This research has attracted international attention and I have been invited to present a paper on this work at a conference sponsored by NATO in Aberdeen in June 1985. Dr. Graham Davies of the Department of Psychology, University of Aberdeen is to visit my laboratories in October to December and it is our intention to write a book on the findings of his and my research.

Perceptual and memory requirements and abilities of witnesses

My research in this area has focussed on identification. In a

criminal trial, before a jury can reach a verdict of guilty, it must be satisfied beyond reasonable doubt that the accused was the offender. Two lines of evidence may be advanced to establish the identify of the offender: (a) circumstantial evidence, for example, the finding of the accused's fingerprints on the murder weapon, the finding of the stolen goods in the possession of the accused, and (b) eye-witness evidence. It is this second line of evidence with which my research has been concerned. Four different but related projects have been and are proceeding. The first project is the development of a computer generated picture of an offender (the compufit), the second project concerns the effect of context and retention interval on identification, the third project concerns the relative efficacy of the live line-ups and photograph displays as a means of identifying a target person, and the fourth project examines the effects of requiring witnesses to give descriptions of a target person on their ability to identify subsequently the target person.

Compufit. After an offence has been committed, police obtain descriptions of the offender from witnesses. From these descriptions a picture of the offender is constructed and this picture is widely circulated so that persons who look like the picture can be detected and interviewed. Often this detection stage is crucial in the identification process. Different methods of constructing a picture of the face have been employed: identikit, photofit and drawings by an artist. Each of these methods has its own shortcomings. All are static and can depict only a small array of the total possible profiles. The identikit and photofit are not able to capture many of the nuances described or at least perceived by the witnesses. The identikit and photofit methods require witnesses to select from examples of various component features, for example, eyes, nose, mouth, hair, chin, in constructing a composite face. Research by Davies and Christie (1982) suggests that selection of

features in isolation of the rest of the face distorts the composite production. Ellis, Shepherd and Davies (1975) demonstrated that reconstruction of photofit faces by observers using the photofit method often did not produce a similar face.

The advantage of a compukit technique for constructing faces of target persons is that it has the flexibility and sensitivity of the artist's drawing and can also depict movement, changing gestures etc. as well as colour and complexion. This facility should permit a more accurate and complete "picture" of the target person and thus result in more accurate recognition of that person.

Monash University have provided me with a graphics computer system. Currently we are developing both the hardware and software that will allow an operator to sketch and colour a face, allow the operator to modify in an almost infinite number of ways the various features, and allow the operator to depict gestures and movement. The products of this technique can be easily stored and can be readily utilized by the television media.

Effect of context and retention interval on identification. The importance of context - orientation, clothing and background - in the recognition of photos of faces was demonstrated by me in a series of experiments (Thomson, 1981; Thomson, Robertson & Vogt, 1982). Since then this finding has been confirmed by other researchers (Davies & Milne, in press; Memon & Bruce, 1983).

I have now completed a study which examines how retention interval interacts with context in identification tasks (Thomson, 1984). In this study, observers saw a series of slides of people and the observers' accuracy in identifying these people was tested in the immediately following slide, when there was one intervening slide, when there were 8 intervening slides, when there were 32 intervening slides, when testing of

the whole list occurred after 0, ½ 1, 3, 24 and 168 hours. I also examined the effect of age by having 6, 7, 8, 11, 13 and 19 year olds serve as observers. There were significant main effects of context, age and retention interval - identification of the target persons was more accurate when context was re-instated at the time of testing, older observers performed better than young observers; false recognitions decreased with age and with changed context, and increased with retention interval. What was of central interest in this study was whether context effects interacted with retention interval. The results of my experiment indicated that context did not interact with retention interval in the identification of a target person, the impairment of changing context was the same at a short retention interval as it was at a long retention interval. However, there was a differential increase in false recognitions as a function of context and retention interval - as retention interval increased new persons in an old context were more likely to be falsely identified.

Live line-ups v photo displays. This project was undertaken to assess the relative efficacy in terms of accuracy of the two methods of identification. If the two methods yield equal performance or if photo displays produce better identification then there would be strong arguments on logistical grounds for using photo displays.

One experiment comparing live line-ups with photo displays has been completed (Turnbull & Thomson, 1984). Two hundred and eighty-nine first year university students witnessed two target events. The first event involved a person interrupting a psychology lecture soon after it began to enquire whether the lecture was a philosophy lecture. Upon being informed that it was not and that the philosophy lecture was in a neighbouring room, the enquirer stood up and left walking across and in front of the lecturer. The second event occurred at the end of the lecture when a

"tutor" entered the lecture theatre and proceeded to make several announcements about the course. One group of witnesses attempted to identify one of the target persons the same day, another group the next day and a third group one week later. Approximately half the witnesses attempted to identify the target person from a live lineup, the other half from a photo display. In addition, half of each group were required to give a written description of the target person prior to attempting an identification: This latter manipulation will be considered under a separate heading.

There were two main findings of this experiment. The first finding was that delay of one week had little effect on identification performance. The second finding was that live line-ups are a more satisfactory way of establishing the identity of an offender. Not only do live line-ups increase the likelihood that the offender will be identified but they also reduce the likelihood of an innocence person being falsely recognized.

The results of this experiment are not entirely consistant with those obtained by Egan, Pittner and Goldstein (1977). They found that performance declined as retention interval increased and that although live line-ups were superior to photo displays, this pattern was only observed for the hits, that is, correct selection of the target person, and not for false recongitions. The different findings with respect to retention intervals may be because Egan et al used much longer retention intervals than we did, they used intervals of 2, 21 and 56 days. Despite the considerable logistic problems in organizing witnesses to see target events and to obtain a line-up of similar but unfamiliar persons I believe further experiments should be run to document the relationship between retention interval and mode of identification.

Effect of description on subsequent identification. It has been noted that in the experiment which examined the efficacy of live line-ups and photo displays some of the witnesses were required to give written descriptions prior to these attempt to identify the target person. The results of this experiment were inconclusive. When the philosophy student was the target person the performance of witnesses required to give descriptions was marginally inferior to the performance of witnesses not so required, but when the target person was the "tutor" the pattern was reversed.

Correlational analyses of description accuracy and identifcation accuracy suggested an absence of any relationship between these two abilities. The absence of any relationship between description and identification has been previously noted by Goldstein, Johnson and Chance (1979) and Thomson and Meldrum (1982).

I propose to continue and extend this line of research by varying the retention interval between observation and description, and description and identification.

Perceptual and memory difficulties of jurors.

The task of the jury is an enormously difficult one. They are required to listen to volumes of evidence, much of it conflicting, weigh up the arguments put forward by the combatants and decide for one party or another. My second main area of research examines whether the present requirements and expectations of juries is realistic. Aside from the problem of the members of a jury remembering all relevant details when their decision must be made, there is also the question of what happens when the jury are instructed certain evidence is inadmissible.

Margaret Topley, one of my Ph.D. students, is examining this issue for her Ph.D. disstertation. She has carried out a number of experiments

in which she has manipulated among other things the type of inadmissible evidence, and the type of instructions. The paradigm which we have employed is the intentional forgetting paradigm (see Bjork & Woodward, 1973). Subjects are given descriptions of persons, for two groups of subjects biased information is included in the descriptions, for the third group this biased information is omitted. One of the two groups given biased information are also instructed immediately after they hear or see the biased information to ignore or forget that information. All subjects are later required to complete a profile of the person described and to recall what they could of the description of that person. Perhaps the most interesting finding to emerge from this series of experiments is that extremely biased information can be ignored or compensated for, but moderately biased information influences recall and profiles of target persons with and without instruction to ignore or forget (see Thomson, in press).

We propose to continue this line of experiment by presenting a photo of the target person to subjects and manipulating visual characteristics of that target person, for example, attractiveness (see Dion, 1972; Landy & Sigell, 1974, Sigell & Ostrove, 1975; Snyder, Tanke & Berscheid, 1977). We particularly want to examine how attractiveness interacts with instructions to forget.

The Age of Criminal Responsibility. During the year the Australian Psychological Society and the Victorian Law Foundation invited me to prepare a paper on the age of criminal responsibility. Currently the Victorian Government is examining the question of the age of criminal responsibility with a view to modifying the legislation. My approach was to analyse criminal responsibility into its necessary components, namely, proscribed act, voluntary control of behaviour, understanding of consequences of the act, and knowledge of wrongness of act, and then

discuss psychological literature relevant to these conditions. My conclusion was that there was little psychological evidence to support a cut-off point of 8 years as is presently the case (s335 Victorian Crimes Act, 1958). I furthermore argued that since psychological research indicated that at ages 5-6, 12, 16 years childrens behaviour showed changes in the relevant behaviour, any one of these ages may be the appropriate control point.

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Context effects in recognition memory:

A developmental study

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Context effects in recognition memory: A developmental study

That recognition may be impaired by changing the context of the target item at the time of the recognition test is now well established. What is not well understood are the processes or mechanisms responsible for these context effects. In an attempt to gain some insight about context effects I have been exploring some of its parameters. To this end I have manipulated age of subjects, type of material and retention interval. In my paper today, I shall focus on the relationship of age and context on recognition memory with some reference to retention interval.

In 1977 Diamond and Carey reported a number of experiments in which the recognition of faces by subjects aged 6, 8, 10, 12, 14 and 16 years was tested. Subjects were shown a series of slides of faces. Immediately after each slide was presented subjects' recognition of the face was tested in a 2 alternative forced choice task. There were four different test conditions:

Type I Misleading clothing cues (Pf) consistent unbiased expression (Es)

Type II Misleading clothing cues (Pf) consistent biased expression (Eh)

Type III Consistent unbiased clothing cues (Ps), misleading expression (Ef)

Type IV Consistent biased clothing cues (Ph), misleading expression (Ef).

The four conditions are illustrated in Figure 1.

Insert Figure 1 about here

The findings of Diamond and Carey are presented in Figure 2.

Insert Figure 2 about here

The most salient feature of the recognition performance depicted in Figure 2 is the interaction of test condition and age. Recognition by young children was extremely poor when misleading clothing cues were present - type I and type II test conditions.

Diamond and Carey explained their results in the following fashion:

1. Recognition of faces may occur in two different ways. One way is the piecemeal, feature checking or analytic way. This way involves subjects matching a feature or series of features. If the number of features matched exceeds some criterion the face is judged familiar, if the number of features matched fails to reach the criterion the face is judged as unfamiliar. The second method whereby a face may be recognized is the global, configurational or holistic way. The global way requires that a satisfactory match of the overall pattern or template of the face occurs.

2. Recognition by the holistic method occurs in the right hemisphere of the cortex.

3. The right hemisphere does not mature until puberty.

4. The analytic technique is ineffective when context is changed whereas the holistic matching technique is unimpaired.

I have entertained strong doubts about Diamond and Carey's claim that maturation of the right hemisphere at puberty enhances recognition of faces for two reasons. First, it is not clear why

changing context should be deleterious to feature matching but not template or holistic matching. On the one hand changing clothing or expression destroys the original pattern and thus should impair pattern matching. Alternatively, if clothing etc is screened out in pattern matching the constituent components of the pattern have not been spelled out nor are reasons why these components are the critical ones advanced. The second reason for my reluctance to accept Diamond and Carey's claim is that my own research (Thomson, 1981; Thomson, Robertson & Vogt, 1982) and the research of others (Davies & Milne, 1983; Memon & Bruce, 1984) show that person recognition of adults also is seriously impaired by changing the clothing and expression of the person.

In my previously reported experiments university students studied a series of slides of persons. In the recognition test these subjects were presented another series of slides of persons. For each person shown, subjects had to indicate whether or not that person had appeared in the earlier series of slides. There were four test conditions:

(1) a slide depicted the same person as seen before in the same context in which that person had been earlier seen - Condition Sp Sc.

(2) a slide depicted a person seen earlier but in a different context - Condition Sp Dc.

(3) a slide depicted a new or different person in a context seen in the study phase - Condition Dp Sc.

(4) a slide depicted a different person in a context not seen in the study phase - Condition Dp Dc.

Context refers to setting, clothing and activity.

Thus two types of person were combined with two types of context to yield four test conditions. Examples of these four conditions are

contained in Figure 1.

Insert Figure 1 about here

The findings of Experiment 2 of Thomson, Robertson and Vogt (1982) are presented in Table 1.

Insert Table 1 about here

The crucial feature of the data contained in Table 1 is the striking effect of context as reflected in both the hit and the false positive rates, despite the fact that the subjects in this experiment were university students. Changing context reduced hit rate from 98% to 43%, presentation of a different person in an old context increased the false recognition rate from 17% to 26%.

Today I will be reporting two experiments which manipulated context of the target items and age of subjects. The first experiment utilized a continuous recognition paradigm, the second experiment a study-test paradigm.

Experiment 1 - Continuous Recognition Task

Four different age groups participated in this experiment. The average age of subjects in each group was 7.5, 9.5, 11.5, and 19.5 years. There were 16 subjects in each group.

A series of 72 slides was projected on a screen in front of subjects at the rate of approximately one slide every 5 seconds. Subjects were instructed to do two things for each presented slide: study the person depicted in the slide in preparation for a recognition test of that person, and make a judgment whether or not the person in the slide had appeared earlier in the series. The

composition of the slide series was as follows: 8 fillers, 8 pairs with no items intervening between successive presentation of the same person or substitute person, lag 0, 8 pairs with lag 8, and 8 pairs with lag 32. For each lag condition there were 2 exemplars of the four person-context conditions. A sample of the slides series is depicted in Figure B.

Insert Figure B about here

The mean proportion of hits for the Sp Sc and Sp Dc condition, and the mean proportion of false positives for Dp Sc and Dp Dc condition collapsed across age and retention interval are presented in Table 2.

Insert Table 2 about here

The pattern of recognition responses shown in Table 2 essentially matches that obtained by Thomson, Robertson and Vogt (1982). Changing context reduced hits from 93% to 51%, presenting new persons in an "old" context increased false recognition from 27% to 42%.

Recognition performance as a function of context and age of subjects is presented in Figure 3.

Insert Figure 3 about here

The main findings of this experiment as depicted by Figure 3 are:

1. Recognition of a person in an unchanged context is uniformly high for all age groups.
2. Changing context impaired recognition, particularly for the 7.5 years age group.
3. False recognitions increased when the new person was tested in an old context, this increase of false positives being greater

for 7.5 year old children.

Thus the greater susceptibility of the youngest age group to context is reflected in both the markedly reduced hit rate for same persons tested out of context, 32% v 57%, 57% and 60%, and higher false recognition of new persons presented in an old context, 58% v 41%, 43% and 32%.

The finding that the youngest group is more susceptible to context than the other age groups is consistent with the finding of Diamond and Carey. However there are two aspects of the data in Figure 3 that are at odds with those reported by Diamond and Carey (1977). The first aspect is that, to all intents and purposes, the performance of the 9 $\frac{1}{2}$ year old group is indistinguishable from the older groups. The second aspect is that the 19 $\frac{1}{2}$ year old group is not impervious to context effects. These two findings cannot be easily reconciled with Diamond and Carey's claim that contextual effects on recognition are largely eliminated at about 12 years of age with the maturation of the right hemisphere.

Experiment 2 Study-test paradigm

Four groups whose mean ages were 7.5, 9.5, 11.5 and 13.5 years were used. There were 24 children in all groups except the oldest group which had 48 subjects.

Subjects were instructed to study a series of slides of persons. There were 24 slides in the series. Subsequently subjects were shown another series of 18 slides, the test series. Half of the slides in the test series depicted people presented in the first series, the other half were new people. As each slide of the test series was presented, subjects were required to answer yes or no depending on whether they recognized the person in the slide as

having been presented in the first series.

The test series comprised 2 filler slides, 4 slides with same person in same context (condition Sp Sc), 4 slides with the same person in a different context (condition Sp Dc), 4 slides with a different person in a context depicted in the first series (condition Dp Sc) , and 4 slides with a different person in a different context (condition Dp Dc). Five different groups for each age group were used to test recognition of persons after a retention interval of 0, ½ 3, 24 and 168 hours.

The mean proportion of hits for the Sp Sc condition, and the Sp Dc condition and the mean proportion of false positives for the Dp Sc and Dp Dc condition collapsed across age and retention interval are contained in Table 3.

Insert Table 3 about here

Examination of Table 3 reveals a typical context effect in that changing of context reduced hit rate from 78% to 19% and increased false recognition when a different person was shown in an old context from 14% to 62%. The major difference between the data contained in Table 3 and those in Table 1 and Table 2 is the dramatic increase in false positives when a different person was presented in an old context 48% compared with 9% and 17%. Both age and retention interval may be implicated in this increment of false recognition.

The graph in Figure 4 depicts hit and false positive rate as a function of context for each age group separately.

Insert Figure 4 about here

Inspection of the graph in Figure 4 suggests that hits and false positives change little with age. There was no main effect of age

found in the statistical analyses. For hits there was however a tendency for age to interact with context, $F(2,107) = 2.416$, $p < 1$. Hit rate in the SpSc condition tended to increase with age, whereas for the SpDc condition, the youngest group tended to have a higher hig rate than the 9½ and 11½ year groups.

There is nothing in the data of this experiment which provides any support for the claims made by Diamond and Carey. There were no main effects of age, nor any interaction of age with context.

Contradictory outcomes with respect to age and the interaction of age and context were obtained in Experiments 1 and 2. In Experiment 1 a main effect of age was found for hits but no such effect was found in Experiment 2. More importantly, an interaction between age and context was found for hits and false positives in Experiment 1 but not in Experiment 2: in Experiment 1, the youngest age group were more susceptible to context effects than the older age groups, whereas in Experiment 2 all age groups were equally affected by context.

The results of Experiments 1 and 2 and those of Diamond and Carey can be reconciled, at least partially, by making the following assumptions:

1. Person recognition may occur by matching of a global pattern or by a checking of a list of features.
2. For unfamiliar persons, the global pattern stored includes the context of that person.
3. The memory trace of global patterns is less susceptible to interference than the memory trace of a list of features.
4. The memories of young children are more susceptible to interference than those of older children.
5. The study-test task of Experiment 2 produces more interference

than the continuous recognition task of Experiment 1 and the 2 alternative forced choice task of Diamond and Carey. Changing context reduced the hit rate by 42% in Experiment 1 and 59% in Experiment 2 presenting a new person in an old context increased the F.P. rate by 16% in Experiment 1 and 48% in Experiment 2.

Aside from the first assumption which is also posited by Diamond and Carey these assumptions are the reverse of those of Diamond and Carey. We are proposing that pattern recognition is more seriously impaired than feature checking when context is changed and that it is the young children's difficulties with feature matching which accounts for their poorer recognition when context is changed.

One implication of this line of argument is that context effects would be greater in Experiment 2 than Experiment 1 - an outcome which was obtained, changing context reduced the hit rate by 42% in Experiment 1 and 59% in Experiment 2, presenting a new person in an old context increased the false positive rate by 16% in Experiment 1 and 48% in Experiment 2. The claim that context interacts with

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Compare Figure 3 with Figure 4

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difficulty of task can be tested more precisely by examining recognition performance as a function of context and retention interval and as a function of context and test list half. Mean percentage of hits and false positives as a function of context and retention interval in the continuous recognition task are depicted in Figure 5.

Insert Figures 5 and 6 about here

Analysis of the data represented in Figure 5 showed that there was a significant main effect of retention interval and a significant

interaction between retention interval and context for both hits and false positives. When the lag 0 data are eliminated from the analyses the interactions disappear for the false positive.

In contrast analysis of the data from the study test task represented in Figure 6 revealed no effect of retention interval nor any context-retention interval interaction for either hits and false positives.

The effect of list half and its interaction with context paralleled that found with retention interval. There was a main effect of half and on interaction of half and context only in the continuous recognition task.

My interpretation of these findings are as follows. We have a limited capacity to store and/or retrieve lists of features of unfamiliar persons. Successive presentation of unfamiliar faces to remember results in an overloading of the feature matching mechanisms. Thus for any particular event the greater the number of unfamiliar people we have to try and remember the greater the likelihood of a breakdown of the feature matching technique, an outcome which means greater reliance must be placed on the global pattern mechanisms.

Conclusions

The experiments reported today were designed to examine four assumptions underlying the explanation of Diamond and Carey. The findings of my experiment do not bear on the question of whether or not recognition may occur in two different ways - feature checking and global matching. This distinction seems to be quite consistent with reports of subjects who have observed that sometimes recognition appears to be automatic, at other times it appears to result from a

systematic and conscious checking of features, for example, one subject said he recognised a person in a slide because that person was tall, blonde and good looking and he remembered that there was a tall blonde, good-looking person in the earlier series.

The experiments were not designed to examine the validity of the remaining three assumptions taken separately:

Recognition by the global method occurs in the right hemisphere of the cortex.

The right hemisphere of the cortex matures at puberty.

Recognition by the global method is unimpaired by contextual changes whereas the feature checking method is seriously impaired.

The findings of the experiments reported today show that the three assumptions cannot stand together. Performance of 9½ year olds does not differ from that of adults, and adults have been shown to be susceptible to context effects.

The findings of the two experiments reported today cannot be dismissed on the basis of procedural differences with the Diamond and Carey study. Context should have little influence on recognition of post puberty subjects according to Diamond and Carey. Until more extensive research into developmental aspects of face recognition it would appear to be premature to argue strongly for a particular theory of face recognition.

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TABLE 1

Mean proportion of hits and false positives for person recognition as a function of context - from Experiment 2, Thomson, Robertson & Vogt 1982.

		Context	
		Same	Different
Person	Same	.976	.429
	Different	.259	.167

TABLE 2

52.

Mean proportion of hits and false positives for person recognition as a function of context in a continuous recognition task - collapsed across lag and age.

		Context	
		Same	Different
Person	Same	.927	.514
	Different	.439	.271

TABLE 3

Mean proportion of hits and false positives for person recognition as a function of context in a study-test recognition task - collapsed across lag and age.

		Context	
		Same	Different
Person	Same	.779	.187
	Different	.615	.140

EXAMPLES 2 AND 3. Sample stimuli for experiments 1 and 2.

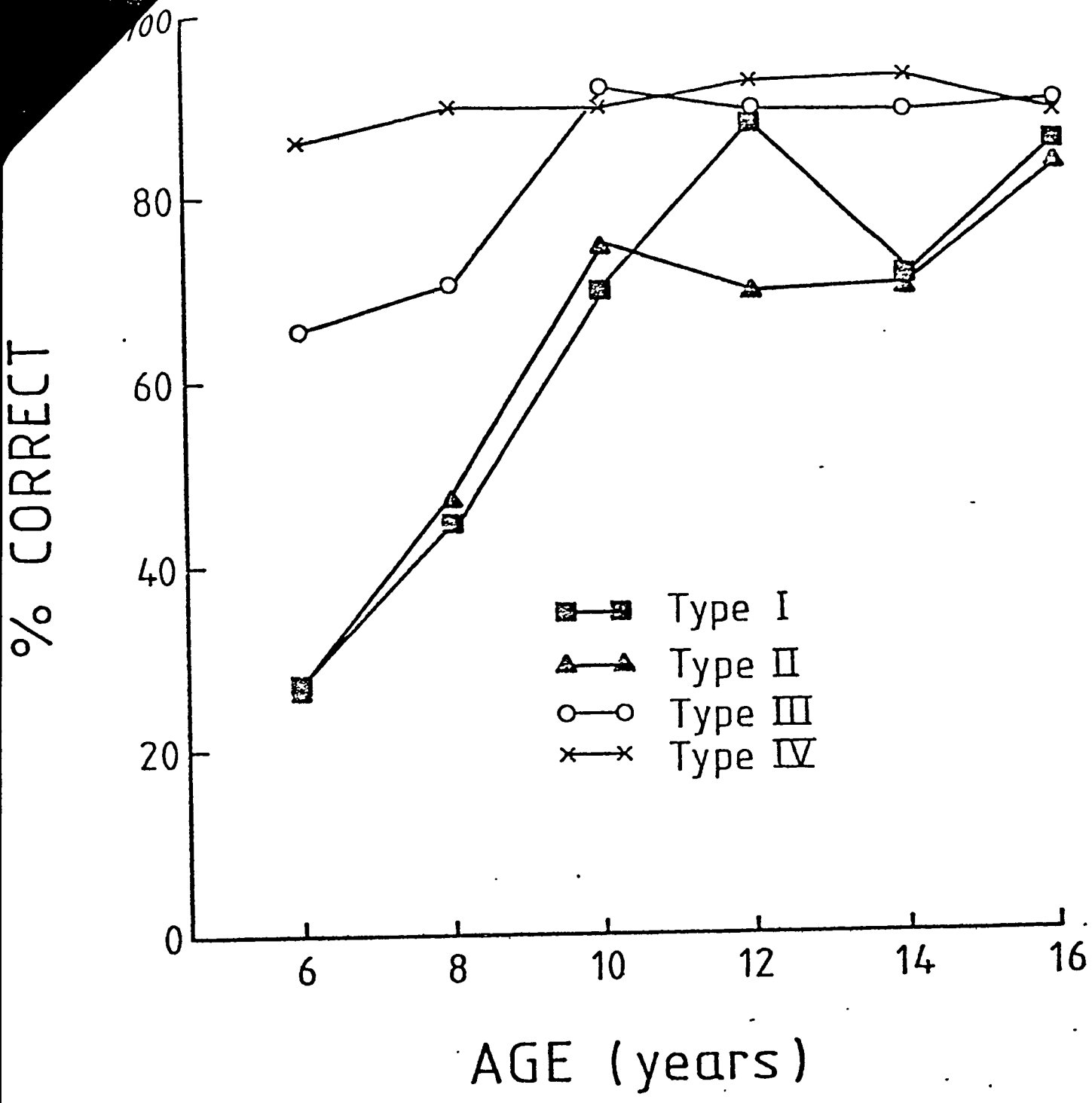

Figure 1. Mean percentage correct discrimination responses as a function of type condition in Diamond & Carey, 1977, Experiment 1.

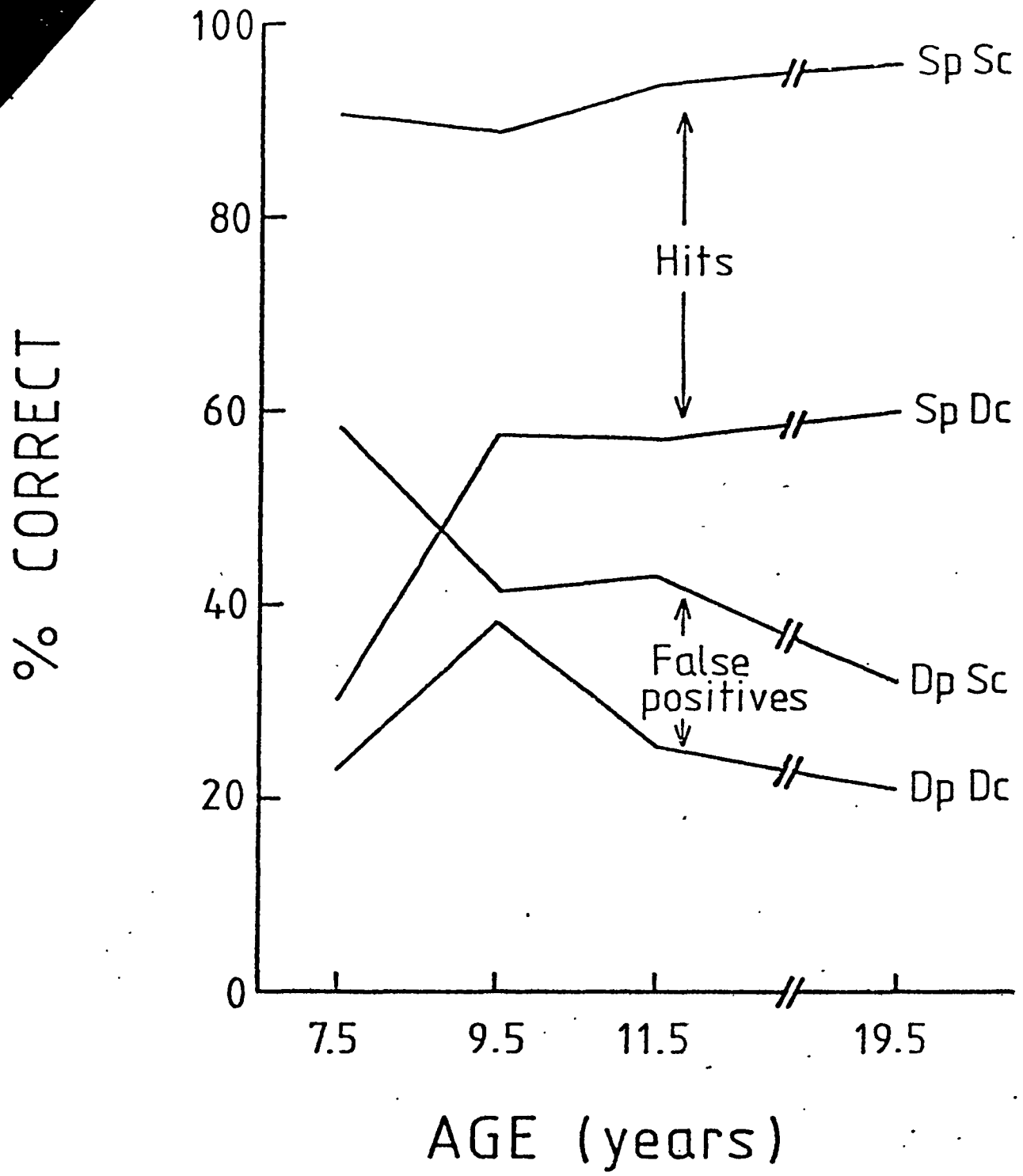

Figure 2. Mean percentage of hits and false positives of persons as a function of age and context in a continuous recognition task.

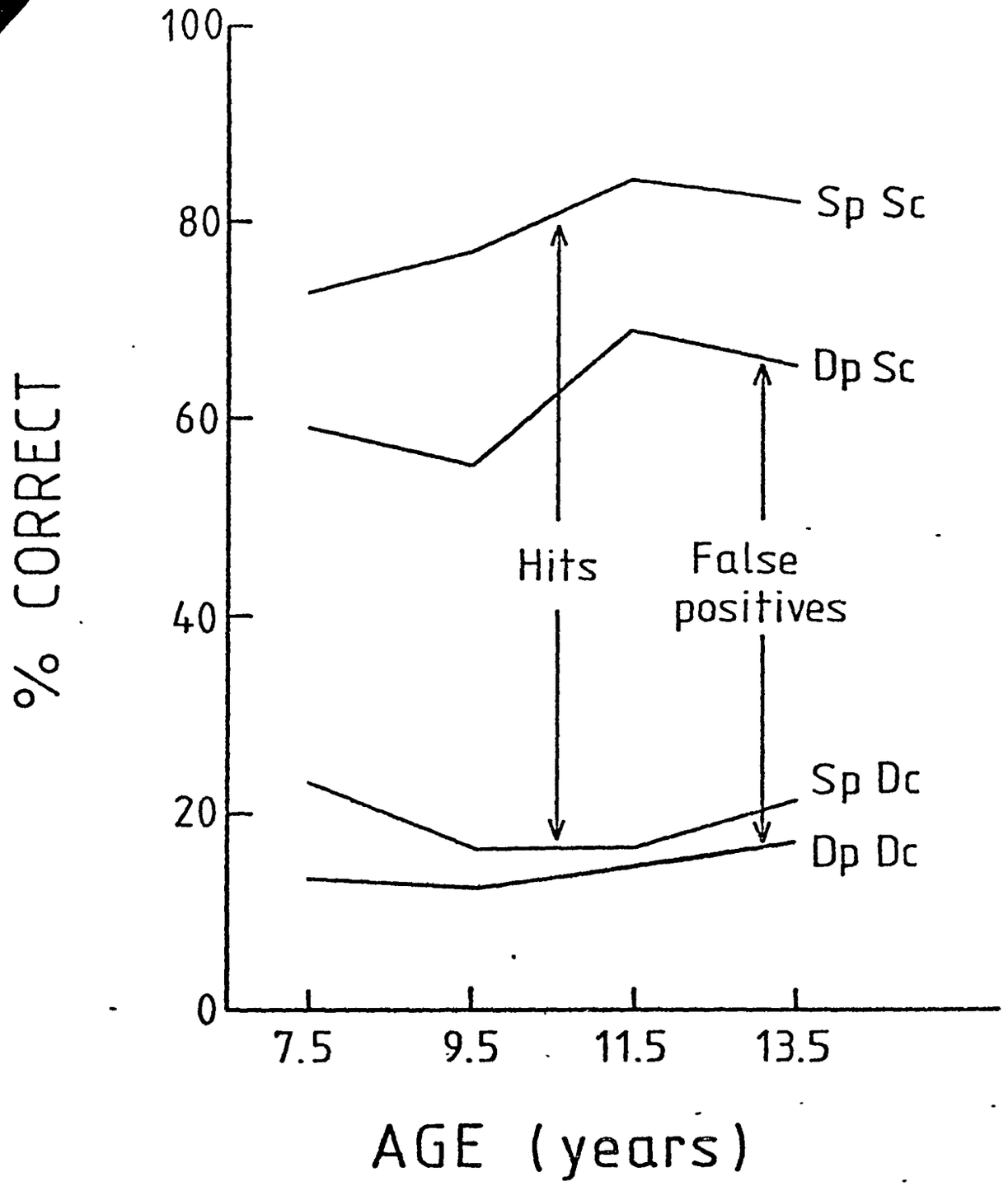

Figure 4. Mean percentage of hits and false positives of persons as a function of age and context in a study-test recognition task.

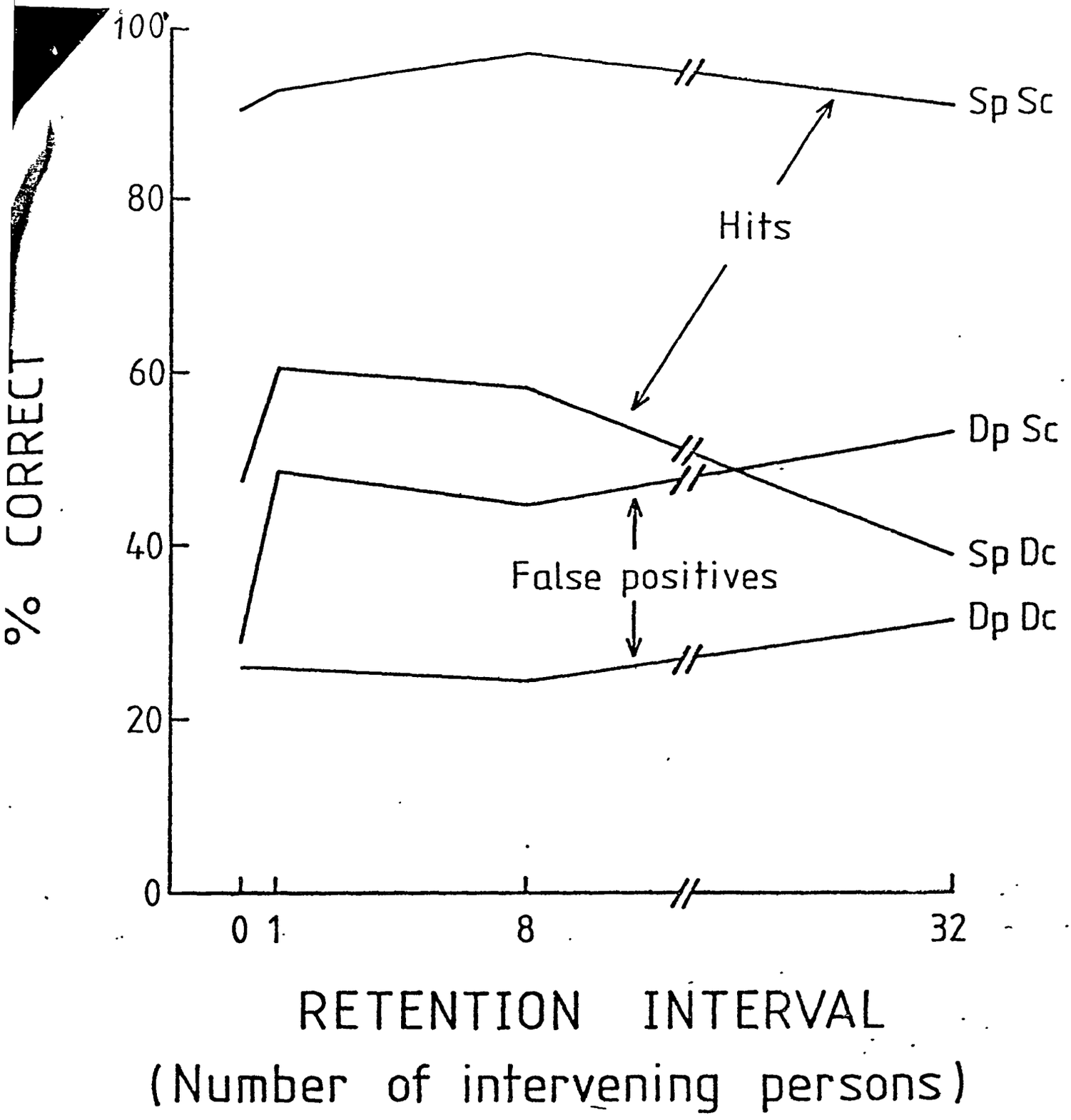

Figure 3. Mean percentage of hits and false positives of persons as a function of context and retention interval in a continuous recognition task.

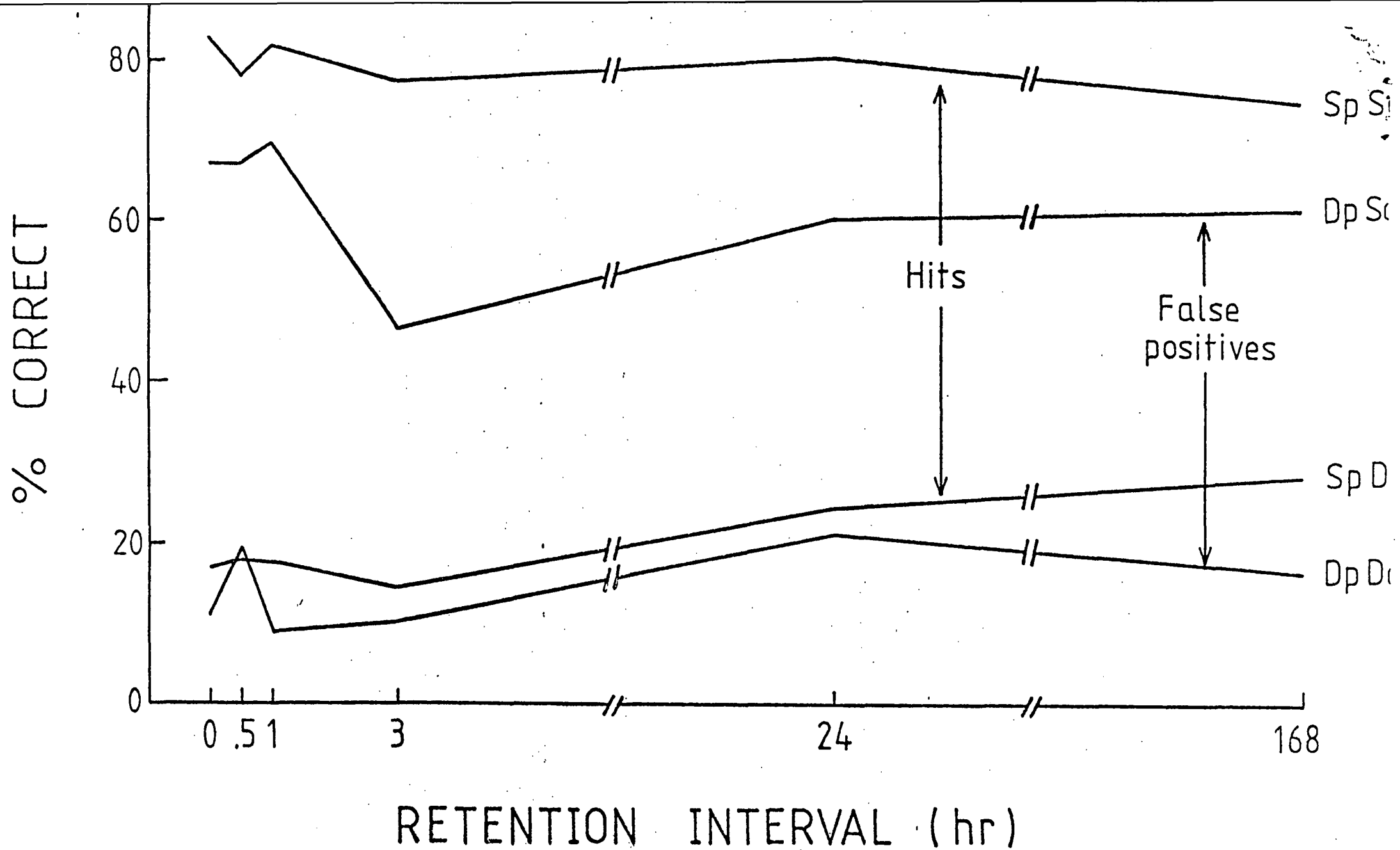

Figure 5. Mean percentage of hits and false positives of persons as a function of context and retention interval in a study-test recognition task.

In search of psychological correlates of criminal responsibility: fool's errand or enlightened approach?

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In search of the psychological correlates of criminal responsibility: fool's errand or enlightened approach?

Most people in our society are members of various sorts of groups. The gamut of group membership may run from the nuclear family, to occupational groups, to community groups, to religious groups, to political groups, to national groups. Membership of a group results in many benefits to the individual, for example, objectives which an individual cannot attain on his own can be attained through group efforts, comfort and security. The benefits of group membership are, however, gained at a cost. In return for the benefits of group membership the individual must be prepared to give up his or her right to act in a manner he or she pleases. Activities which are inconsistent with the attainment of the group's objects are banned. Thus every group prescribes the types of activities in which its members may or must engage. These prescriptions may range from the criminal laws of society at large through to norms or rules within family and friendship groups.

Violation of a group's rules by a member results in disciplinary action by the other members of the group. This disciplinary action may take the form of a reprimand, social ostracism, physical injury or even death of the violator. An obvious reason for these sanctions is that unchecked violations would impair the capacity of the group to achieve the group's objectives and even threaten the very existence of the group.

The requirement of conformity by group members to "rules" upon pain of some form of punishment is not confined to humans. Many species have "rules" about mating, aggression and territory. Thus, for example, infringement of another member's territory may result in the trespasser suffering injury at the hands of the "owner" (King, 1959; Kummer,

1968).

In human and non-human primates there is, however, a section of the population which can violate rules with apparent impunity. This section of the population is the young. Kummer (1968) observed that the young baboon was able to trespass with impunity, was able to crawl over or onto other baboons without reprimand. Suomi and Harlow (1978) noted that aggressive behaviour was tolerated when this behaviour was exhibited by young chimpanzees, but was not tolerated when similar behaviour was exhibited by older "retarded" chimpanzees. Similarly, in our society, children are freed from blame for these transgressions. This exculpation of children finds formal expression in our criminal justice system. Thus, in Victoria, a child below the age of 8 years is held to be incapable of committing an offence (s335, Crimes Act, 1958) with a common law presumption that a child between the ages of 8 and 14 must have been shown to have had a criminal intent when committing an offence (Williams, 1983, p. 11). That young primates, human and non-human, are excluded from punitory measures when they violate their society's rules suggests that: a) violations by the young do not pose any threat to the attainment of the group's objectives and (b) implementation of sanctions against the young may pose a greater threat to the survival of the group than violation of the rules by the young.

Given that primates are exculpated for violations of rules on the basis of youth, the question then arises as to what characteristic or characteristics permit an individual to be identified as a youth. In non-human primates and indeed other species, the classification of an individual as young appears to be based on physical characteristics. In some species morphology, for example, shape and size play a crucial role in the classification process. Another key characteristic seems to be colour of the hair. Baboon infants can be distinguished by their hair

colour - from birth to about 6 months their hair is black, but then it changes to brown. With humans, it is not until about the age of 14 for females and 16 for males that adult height and weight is attained (Peterson, 1984; Shuttleworth, 1939). An early study indicates that the growth of reproductive organs and secondary sexual characteristics such as pubic hair, breasts, etc., is at its maximum from 12 to 16 years and finishes at about 18 years (Scammon, 1930). Thus, it is clear that the setting of 8 years as the age of criminal responsibility in our society is not based on considerations of physical characteristics. In the following section, criminal responsibility is examined to determine whether the age of 8 as the age of criminal responsibility may be justified on psychological grounds.

Criminal Responsibility.

With the exception noted below, four criteria must be satisfied for a person to be held criminally responsible. First, he or she must have committed an act which is proscribed by law (the actus reus). Second, he or she must have been aware of what he or she was doing and the conduct in question must have been under voluntary control. Third, he or she must have foreseen both the immediate and more remote consequences of his or her behaviour. Fourth, at the time of committing the act he or she must have known that his or her conduct was punishable or wrong (the mens rea). Each of these four factors are necessary conditions for criminal responsibility and together are sufficient conditions. (However many minor statutory offences are punishable irrespective of the existence of mens rea; the mere intent to do the act forbidden by the statute is sufficient mens rea.) Assuming that a proscribed act has been committed then there are three conditions to be fulfilled. The findings of research relevant to these three conditions

are now reviewed.

Awareness and voluntary control of actions.

The first condition to be satisfied is that an individual was consciously aware of his activity and this activity was done by the individual of his own free will. Awareness and voluntary self control may be contrasted with automatism, actions done without awareness or in the absence of the normal everyday conscious mind[1]. Courts have accepted the defence of automatism arising from such diverse causes as drunkeness[2], somnambulism[3] and hypoglycaemia[4]. The issue to be canvassed here is whether or not an individual's behaviour which is controlled by the group to which he or she belongs can be classified as automatism, and if so to examine this behaviour as a function of age.

As early as 1903 Le Bon noted individuals often became "lost" in crowds and perform acts in crowds that they would not perform if they were alone. He stated that "whoever be the individuals that compose it, however like or unlike be their mode of life, their occupations, their characteristics, their character, or their intelligence, the fact that they have been transformed into a crowd puts them in possession of a sort of collective mind" (p. 20). Subsequent research has confirmed the strong influence of groups and social settings on people's behaviour, for example, Asch (1951), Festinger, Pepitone and Newcomb (1952), Milgram (1965), and Zimbardo (1971). The findings of these studies are

1 Fain v Commonwealth (1879) 87 Ky 183

2 R v O'Connor (1981) 146 CLR 64

3 Fain v Commonwealth (1879) 78 Ky 183

4 R v Quick [1973] QB 910

that an individual will behave in a fashion that may be quite alien to his or her normal behaviour to meet the demands of the social setting. The alien behaviour observed ranges from making erroneous perceptual judgments (Asch, 1951), to administering apparently severe electric shocks to individuals (Festinger, Pepitone, & Newcomb, 1952; Milgram,1965) to confining and brutalizing "prisoners" (Haney, Banks & Zimbardo, 1973). Thus the case for categorizing an individuals behaviour shaped and demanded by group pressures as automatism would appear to be as convincing as that of drunkeness, somnambulism and hypoglycaemia.

The susceptibility of children to group pressures has also been studied extensively (Berenda, 1950; Constanzo & Shaw, 1966; Iscoe, Williams & Harvey, 1963; McConnell, 1963; Patel & Gordon, 1960; see also Hartup, 1970, for review). These studies showed that task and situational factors are extremely important determinants of conformity to groups, for example, difficulty of task, ambiguity of task and requirements, size of group, prestige of group members, presence or absence of any support for individual's position. With respect to age, the overall picture is one of increasing conformity from pre-school years till about 13 years and then a steady decrease through adolescence (note however that Shanab & Yahya (1977) found no age differences in frequency of administering shock to an individual, ages examined were 6-8, 10-12 and 14-16 years). While the precise age at which conformity is greatest varies somewhat from study to study it is clear that children between the ages of 9 and 15 are very susceptible to conformity pressures.

The conclusion to be drawn from these studies is that a significant amount of children's behaviour may not be under their voluntary control, rather their behaviour is determined by group pressures. It is not till

the child is about 15 years that the effect of group pressure wanes.

Anticipation of consequences.

The most systematic study of the development of the child's understanding of consequences has been that of Piaget and his associates (Laurendeau & Pinard, 1962; Inhelder & Piaget, 1958; Piaget, 1926, 1927, 1928, 1929, 1930, 1952). According to Piaget, the child's understanding of causality and consequences is a function of his or her cognitive development. Piaget proposed that cognitive development falls into four stages: the sensorimotor, the pre-operational, the concrete operational and the formal operational. The ages which roughly correspond to these stages are 0-2 years, 2-7 years, 7-12 years and 12 years and above. According to Inhelder and Piaget (1958), the formal operational stage can be divided into two substages, the first of these substages occurring from 12 to 15 years, the second substage from 15 years onwards.

During the sensorimotor stage the child's awareness of consequences is very vague. The child appears to believe that his or her activities are responsible for any contemporaneous happening. In the pre-operational stage, the child draws a causal relationship between two events which happen to occur temporally contiguously. Thus, in answer to the question "why does a boat float", the child may respond "Because it is painted red" (see Laurendeau & Pinard, 1958; Piaget, 1926, 1927).

It is during the concrete level of operations that the child is able for the first time to specify simple causal relations, so long as the events in question are tangible or concrete and the relationship is not complex. If the child is presented with two equal masses or volumes and asked what would be the relationship between the two instances if some of the mass or liquid was taken from or added to one of the

substances or containers, the child can answer correctly (see Elkind, 1961; Wallach, Wall & Anderson, 1967). However, if the task is a more abstract or difficult one the child at this stage will regress to a more primitive causal explanation. For example, in response to the question "Why does a boat float?", 10 year old children may give such answers as: "because it has a floater, because it is made of wood, and only rarely: because a large boat displaces much water (Laurendeau & Pinard, 1962, p. 222-225).

At about 12 years of age according to Piaget (Inhelder & Piaget, 1958) the child's reasoning enters a dramatically different stage. No longer is the child's reasoning restricted to concrete events. However, it is not till about 15 years of age that the child is able to consider in a systematic fashion all possible outcomes if a certain course of action is initiated (Inhelder & Piaget, 1958, p. 120).

Knowledge of wrongness.

Two different meanings can be ascribed to the assertion that an individual knows a particular activity is wrong. The first meaning is that, irrespective of knowing why, the individual knows or feels that the activity in question is wrong. The second meaning implies that the individual knows why the activity is wrong, that the individual can articulate some principle which is being violated. A number of different approaches in the study of the development of the child's knowledge of wrongness have been taken. The three approaches to be briefly reviewed here can be broadly categorized as learning theory approach, Freudian approach, and cognitive approach.

Learning Theory.

The central tenet of learning theory is that the emission of specific behaviours can be increased or decreased as a function of

reinforcement or punishment. Thus, for example, a rat will quickly learn to push a bar, if each time it pushes the bar it obtains a food pellet - positive reinforcement. Similarly a dog will learn to jump each time a light comes on, if, when it fails to do so, it receives an electric shock to its paws - negative reinforcement. Punishment differs from negative reinforcement in that the animal is punished for making a particular response, for example, the rat receives a shock to its paws whenever it takes food pellets from a food box (see Kimble, 1961, p. 71). It is interesting to observe that rat's behaviour immediately after the illicit act has been committed but before the punishment has been administered. It will exhibit a fear response, for example, cringe in a corner or defecate. Anthromorphically speaking, the animal knows it has done wrong and will be punished. The important thing to note is that what is learned is the emission or suppression of a particular type of response in situations that are physically similar to the original learning situation (Bandura & Walters, 1959; Rescorla, 1984). The same learning principles apply to humans - adult and child. According to this position, an individual's knowledge of wrongness would be a catalogue of situations in which punishment has been administered. All other things being equal, the older the individual, the greater the opportunities for him or her to have been punished for different behaviours and therefore the greater will be the knowledge of wrongness.

One significant difference between human and many non-human species, and between young and old children is the range of events that can operate as reinforcers or punishments. Bandura (1965) has shown that children can learn many types of behaviour, including the suppression of "wrong" behaviour by observing the experiences of others and identifying with those others. Sears, Maccoby and Levin (1957) have shown that withdrawal of love is an extremely effective means of

punishing and establishing that certain behaviour is wrong. Other researchers (Hoffman & Saltzstein, 1967; Aronfreed, 1969) have demonstrated that reasoning and pointing out the effects of wrongdoing are a very effective way of augmenting knowledge of wrongdoing. These forms of control, particularly the last one, would appear to depend on the level of cognitive development of the child and will be discussed when the cognitive development approach is examined.

Freudian approach.

The responsibility for the development of the child's knowledge of right and wrong can according to Freud be attributed to two mechanisms: the ego ideal and the conscience (Freud sometimes used these mechanisms interchangeably and at other times attributed different functions to them). The ego ideal is the repository of idealized standards of behaviour which an individual uses as a comparison and goal for his or her own behaviour. In contrast, the conscience comprises a catalogue of those things which are prohibited.

Crucial to the development of both the ego ideal and the conscience is the process of identification. Identification involves the incorporating by the child of other peoples' values and behaviours into his or her own value and behaviour repertoire. This process commences early in life and continues through adolescence to adulthood (Freud, 1940; Lampl de Groot, 1962). However, there are two periods in the child's life when identification assumes a major role. The first of these periods occurs between the age of 3 and 5 years. At this time the child experiences intense sexual desires for the opposite sex parent. The child perceives the same sex parent is much more powerful than he or she is, so this results in a situation where the young child both fears and hates that parent. The situation is resolved by the child

identifying with that parent, thus ending the rivalry at the same time as gaining sexual satisfaction with the opposite sex parent vicariously. At puberty (12-15 years of age) there is a dramatic surge in intensity of sexual desires and with these desire concomitant fears. Once again the conflicting feelings are resolved by further identification either with a parent, or significant other figure.

Research findings do not give strong support to Freud's claim that young boys internalize their father's rather than mother's values. Hoffman (1970) found that it is not until adolescence that the father's values have any significant impact on their children's attitudes.

Cognitive approach.

The method employed by cognitive psychologists to study the child's knowledge of right and wrong is to present or describe a situation to the child and ask the child to interpret that situation. Piaget (1932) would question children about the rules of marbles. On the basis of his observations and children's responses to his questions Piaget delineated three stages of rule interpretation. In the first stage (the egocentric stage) from 2 to 5 years of age, there is little awareness of rules. In the second stage (the stage of moral heteronomy) which extends from 6 to 10 years of age, the child treats rules as immutable and inviolate. Finally, in the third stage (the moral autonomy stage) from 10 years of age onwards, the child constructs and modifies rules at will, the one necessary condition being that all participants must be in agreement about the rules.

Another task Piaget used was to describe the behaviour of two children, one in one situation and the other in a very different situation. He would then ask his listeners which child was "naughtier". Children under 10 years of age assessed the wrongness or

naughtiness in terms of the amount of damage, or extent of exaggeration whereas the older children determined wrongness on the basis of the intent of the violator. Kohlberg and his associates (Colby, Kohlberg, Gibbs & Leiberman, 1983; Kohlberg, 1969, 1973, 1976, 1981; Rest, 1983) have considerably extended and modified the stages proposed by Piaget. According to the earlier writings of Kohlberg (Kohlberg, 1969, 1973) moral development passed through three levels, the premoral, conventional and principled level. Each of these levels comprises two sublevels. The characteristic of the premoral level is that the goodness or badness of an action is assessed by the consequences that behaviour has for the child - will the behaviour result in punishment or reward for the child. At the conventional level behaviour is assessed first on the basis of whether it pleases and is approved by parents or peer group and secondly whether or not it conforms to the rules of established authority - the law and order orientation. Behaviour at the principled level is evaluated in the first place on the basis of principles of what is best for society and secondly, on principles of universal justice. In his latest writing Kohlberg (Colby et al, 1983) omits the second sublevel of the principled level.

Insert Figure 1 about here

Studies which have examined levels of moral reasoning as a function of age find a steady age progression in reasoning, for example, Colby et al, 1983, Kohlberg, 1963, Watson, 1983. The pattern depicted in Figure 1 represents a typical outcome. The graph in Figure 1 shows that it is not till about 12 years of age that the moral reasoning of the majority of children has shifted from a premoral level to a conventional level.

Age of criminal responsibility.

The object of reviewing research and theories pertaining to awareness and voluntary control of behaviour, anticipation of consequences of behaviour, knowledge of wrongness of conduct was to determine what might be an appropriate age of criminal responsibility. Before a summary of the various findings and theories with respect to age are considered, comment should be made as to the interpretation and function of psychological research and theories in legal decision-making. The first point that has to be made is that psychology and psychologists should not usurp the role of law and law-makers. What psychologists can do is to offer insights which can be gainfully used by law-makers in formulating their proposed legislation (compare Scharf, 1982, p 22-23). The decision as to legal and social policies cannot be made solely on the basis of psychological research and theories.

The second point that must be commented upon concerns the interpretation of psychological data and theories. Two extreme positions are frequently adopted in evaluating psychological research and theories. On the one hand people including people responsible for the formulation of legal policy often reject the research findings and theories out of hand on the basis that the research findings or the research findings on which the theories are based are not relevant to everyday behaviours of "normal" people because the findings are based on laboratory research or observations in a clinical setting. The other extreme position is to interpret the findings without regard for the manner in which the data for these findings were collected. There are many times when findings have been generalized to quite inappropriate situations. The correct approach lies somewhere in between these two extremes. Thus, the findings that have been reviewed today should not be interpreted as saying that the age of criminal responsibility must be

fixed at a particular age. What is being asserted is that changes in the child's intellectual and emotional capacity are occurring, that these changes are reflected in the child's responses to experimental tasks or clinical questions and that there are certain ages when the majority of children will reflect one manner of thinking or responding, rather than another.

A summary of the ages at which qualitative changes occur in the child's behaviour are presented in Table 1.

Insert Table 1 about here

The first point to be made with respect to the ages in Table 1 is that 8 years of age the present age of criminal responsibility, does not appear anywhere. The second point is that the ages of 5-6, 12 and 15 appear frequently in the different conditions. Thus, based on the data in Table 1 an argument could be made for totally exculpating all children below 15 years, or totally exculpating all children below 12 years with the presumption that a child between 12 and 14 must be shown to have criminal intent when comitting the crime or one of the other combinations.

There is a wide range in the age at which children become physically mature, most children maturing between the ages of 10 and 16. However, the age range for the possession of psychological characteristics is probably far greater than the age range for physical maturity. This state of affairs means that it may be established that people much older than 12 or 15 years are deficient in one or more of the psychological correlates of criminal responsibility. Conversely, a certain percentage of the population below the age of criminal responsibility will possess the psychological characteristics which

would, if they and their actions were judged individually, be judged as criminally responsible.

Finally, it must be emphasized that none of the age-ability standards are static. Undoubtedly, the present generation trhough the extent education system and the efforts of most media have had the opportunity to reflect on social, ethical and legal issues that did not impinge on the lives of older generations. However, just as individual age-ability standards are not static, neither are the standards imposed by society or its members, nor the manner in which those standards are enforced.

Table 1. Summary of findings for age of behaviour changes for behaviour associated to criminal responsibility

Condition	Age in years of behaviour changes
Awareness and voluntary control	
Conformity studies	15
Anticipation of consequences	
Piagetian studies	2, 6, 12, 15
Knowledge of wrongness	
Freudian theory	3-5, 12-15
Piagetian studies	6, 10
Kohlberg studies	12

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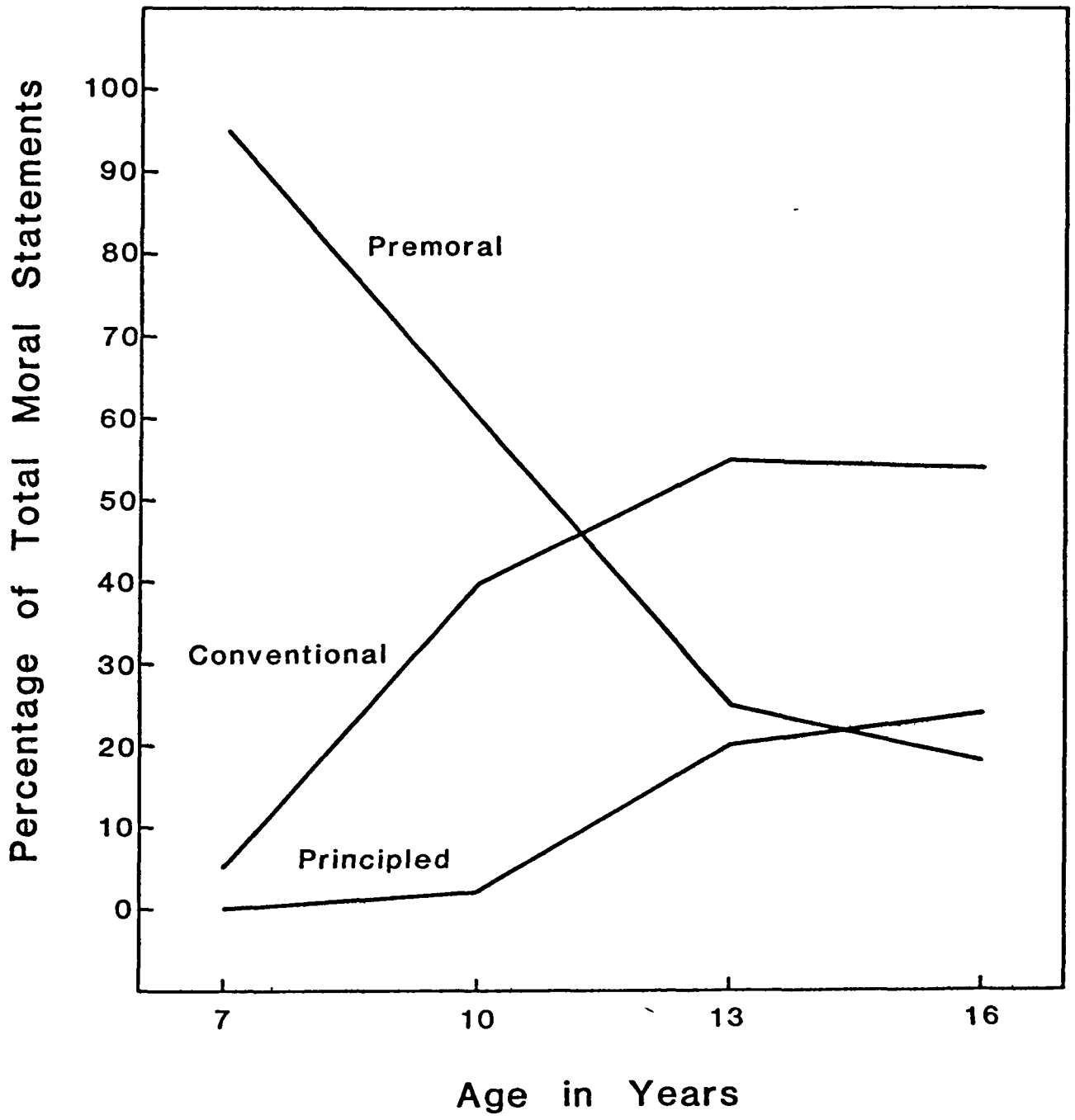
Figure 1. Moral reasoning as a function of age


Percentage of Total Moral Statements
100
90
80
70
60
50
40
30
20
10
0
Premoral
Conventional
Principled
7
10
13
16
Age in Years

Eyewitness Testimony:
Photographic V's Live Lineups

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Eyewitness Testimony: Photographic V's Live Lineups.

Introduction

The Identification of the offender is a crucial aspect of our criminal justice system. It is therefore important that the most efficient method of identification be employed. Whether or not a given method is efficient depends primarily upon the accuracy of the method. However other considerations are also important, these considerations being the time to complete the identification procedure and the costs. The experiment reported in our paper today examines the relative accuracy when live and photographic lineups were employed. It examines the realionship of the accuracy of a prior description and accuracy of recognition of the target person. It also examines identification as a function of retention interval.

Live v's Photographic Lineups-

Photographic lineups enjoy certain advantages over live lineups. There are enormous logistical problems with live lineups. Live lineups require the assembly all at one time at the same place of the witnesses, the suspect and seven or eight people who act as lures in the lineup. Police standing orders which control the conduct of identification parades specify that the other members of the lineup be physically similar to the suspect and have a similar life-style-whatever that may mean. In practice, the requirements of police standing orders are difficult to meet and consequently the suspect may differ significantly from the other members of the lineup.

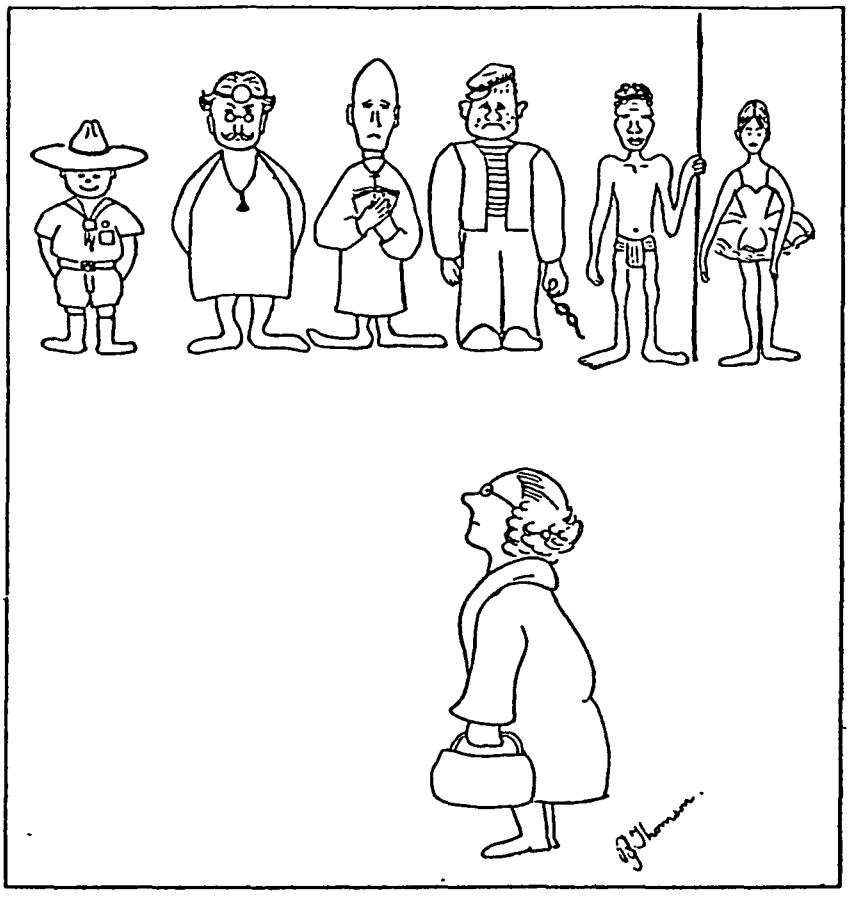

Figure 1. The Identification Parade.

In a recent Victorian case, the accused was a very short person, all the other members of the lineup were much taller. The suspect may differ from the other members of the lineup in a number of ways, for example, the clothing he wears, his grooming, his hair style etc.. There is one other way which may distingush the suspect from the other members of the lineup. Because the suspect knows he is the suspect his demeanour in the presence of witnesses may reflect this knowledge. Thus, it is possible that witnesses may select the suspect, not because the witness recognises him but because the suspect is the only person who possesses some characteristic similar to that possessed by the offender or is the only person in the lineup who looks ill at-ease.

The practical difficulties inherent in a live lineup can be largely overcome with a photographic lineup. Without the pressure to have witnesses and lineup in the same place at the same time, members of the lineup can be selected to ensure that they meet the requirements of Police standing orders with respect to similarity of physical characteristics. The suspect will not experience the same

stressful situation of standing in a lineup, apprehensively awaiting the response of the witness. Identification by the witnesses can take place at a time and place of their convienence. Further, photographic lineups are likely to be less stressful to the witnesses.

One other positive aspect of photographic lineups is that these lineups can be presented to the jury during the trial for the jury to assess the fairness of the parade.

Photographic lineups suffer from one major defect in comparison with live lineups. A photograph cannot capture dynamic features of the individual. It can sample only a limited number of static features. With a live lineup witnesses have the opportunity of observing many different features such as expressions and postures. The opportunities to observe the gait and voice of the members of the lineup are also excluded from a photographic lineup. This latter deficiency of photographic lineups could however be overcome by supplementing the photographic lineups with voice lineups.

That one method of identification suffers from certain practical difficulties is relatively unimportant if that method is a more efficient measure of a witnesses memory. Efficiency of recognition measures must be assesed in terms of frequency of false recognitions and correct identifications; particularly false recognitions, since our justice system is based on the assumption that it is better to have a system which errs on the side of the guilty going free to minimise the innocent being convicted. If however, two methods provide equivalent identification outcomes, then practical considerations become important.

In the experiment to be reported today witnesses performance in identifying a target person in a live lineup were compared with other witnesses performances in a photographic lineup. The conditions employed in each type of lineup were designed to maximise the positive attributes of each type of lineup within the practical limitations of the experiment.

<Insert figure 2>

The top row of persons in figure 2 is a photograph of the photographic lineup. Note that all persons are wearing the same clothing and the clothing is that worn by the target person at the time he was originally observed by the witnesses. The bottom row of persons in figure 2 is a photograph of the live lineup. It is to be noted that the members of the live lineup are the same as the members of

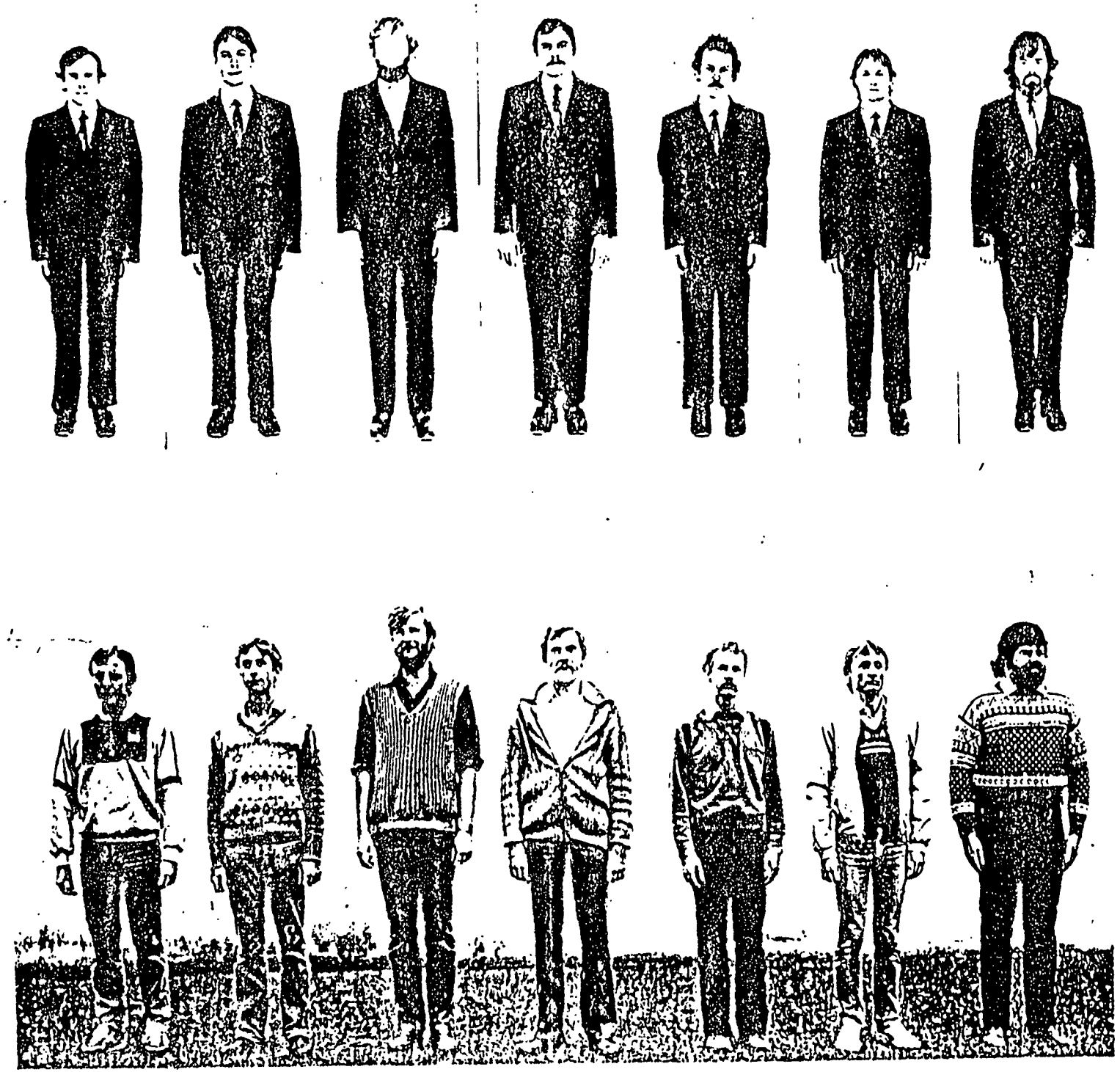

Figure 2. A Photo of a Photographic Lineup (top) and a Live Lineup (bottom).

the photographic lineup and thus, one advantage in everyday life of the photographic lineup having a fairer composition has been eliminated.

Prior Description

In 1980 the Commonwealth and state attorney generals had before them a recommendation for the Australian Law Reform Commission that all witnesses be required to give a description of the offender before the witness attempts to identify the offender in a lineup. That the witnesses' description did not match the person he selected in the lineup or that the witness was unable to provide a description but subsequently selected someone in the lineup was to be a matter for judicial comment. The judge was to instruct the jury that lesser weight should be given to the identification evidence of these witnesses. The object of this recommendation was to eliminate the problem of witnesses selecting the accused not on the basis of their memory of the offender but on the basis of subsequent events, for example, newspaper photos and pressure or suggestions at the time of the lineup. While the elimination of such contaminating factors is highly desirable an implicit assumption underlying the recommendation was that good recallers are good identifiers and bad recallers are bad identifiers. The second aim of our experiment was to examine the validity of this assumption. To this end some witnesses were asked to give a written description of the target person before attempting an identification. A third aim of the experiment was to examine the effect of on recognition of requiring witnesses to give a description prior to attempting to identify the target person. To asses this effect, prior to the identification phase half the witnesses were required to give a written description of the target person, the other half were given an abstraction task as a filler activity.

Retention interval

It is a well established that the longer the retention interval the poorer the recall and recognition. However it is also well established that the decline in recognition performance as a function of retention interval is more gradual than that of recall performance. The third object of this experiment was to examine whether retention interval interacted with the type of identification procedure or with requiring prior description on subsequent recognition.

Design

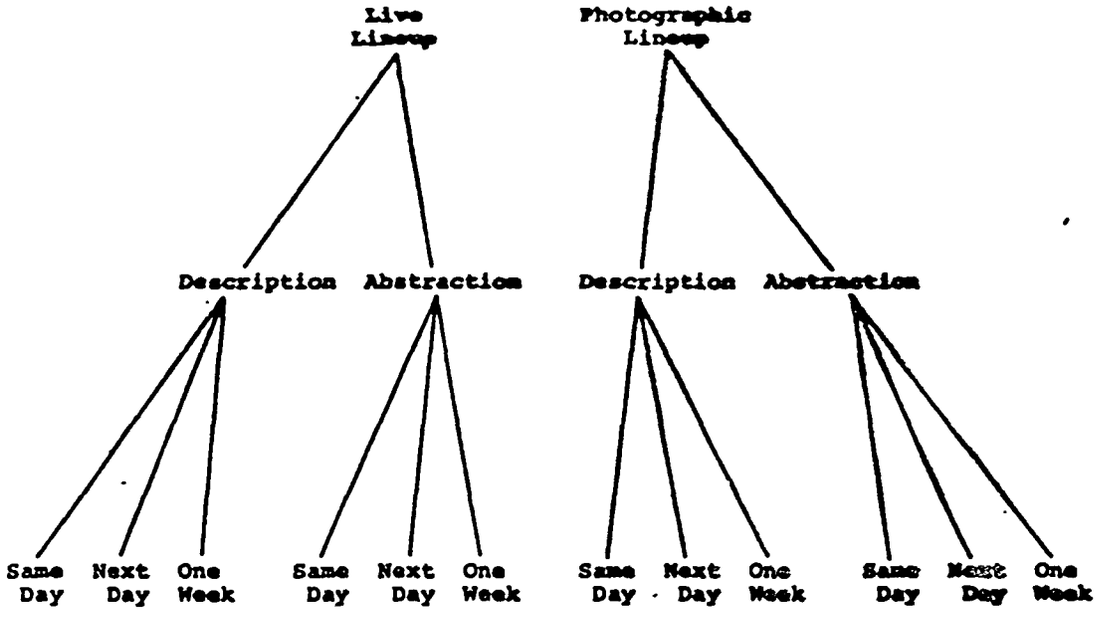

Figure 3. Design.

The design of this experiment was a 2 x 2 x 3. Two conditions of identification, live versus photographic. Two conditions of preceding task, description versus abstraction test. Three retention intervals, the same day, the next day and one week.

Method

289 first year students participated as subjects in the experiment. Two noticeable events were staged in the lecture theatre during the psychology lecture. A student entered the lecture theatre about five minutes after the lecture had started, seated himself in the aisle and started to take notes. About two minutes later he raised his hand and asked if the lecture was the philosophy lecture. The lecturer replied that it was not and informed the student that the philosopy lecture was in the adjacent lecture theatre. The philosophy student then stood up and headed towards the door. About half way to the door another student yelled out to the departing philosophy student that he had forgotten his umbrella, which he had. The philosophy student returned to retrieve the umbrella and made his exit.

The second event was far less dramatic. It occured at the end of the same lecture and involved a different person entering and reading three genuine messages relating to the

students course. This person will be refered to as the messenger.

Both events were designed to ensure maximum attention from the audience. Both subjects were wearing the same dark suit, white shirt, light brown tie and clogs. In addition the philosophy student carried a brief case and an umbrella. The messenger carried a sheet of paper with the messages on it.

Students attempted to identify the philosophy student and the messenger in lineups held during the students tutorials. These tutorials occured either on the same day (within three hours), the next day or one week later.

Students were given one of two booklets during the tutorial. In one of the booklets there was instructions requiring the student to give a description of either the philosophy student or the messenger. In the other there was instructions for the completion of an abstraction task. The abstraction task contained I.Q. test items.

Subjects were allowed five minutes to complete as much as they could of their respective tasks after which they were taken one at a time and presented with either a live or photographic lineup. The photographic lineup was made up of photos of front, two sides and back profiles as in figure 4.

<Insert figure 4.>

Subjects were asked to examine closely the lineup (either photographic or live) and to indicate if they recognised any of the members of the lineup as being the philosophy student (or the messenger). In addition, subjects were asked to give a confidence rating on a 1 - 5 point scale.

Results and Discussion

The data will be presented in the following three sections:- live versus photographic lineups, relationship of prior recall with recognition, and retention interval. Since the pattern of responses differs in some conditions for the philosophy student and the messenger, the identification responses to these two target persons are presented separately. Three measures are reported:- persentage of hits, that is, correct identification of the

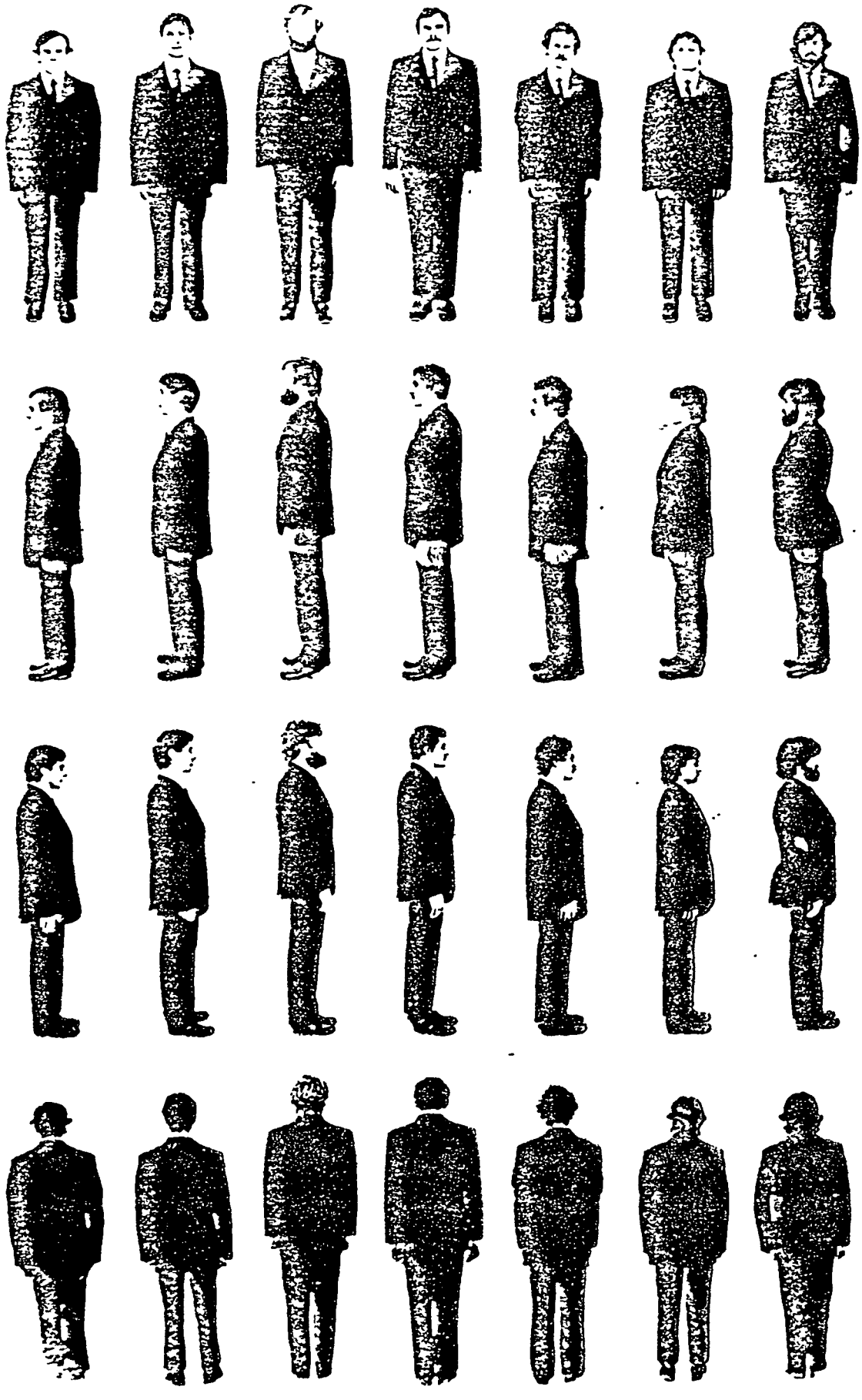

Figure 4. A photo of the Photographic Lineup.

target person; percentage of false positives, incorrect selection of a non-target person, percentage misses, failure to identify anyone, including the target person, in the lineup. The retention interval data will be presented first, followed by the live versus photographic lineups and then the effect of prior recall.

Retention Interval

Identification performance as a function of retention interval is depicted in figure 5.

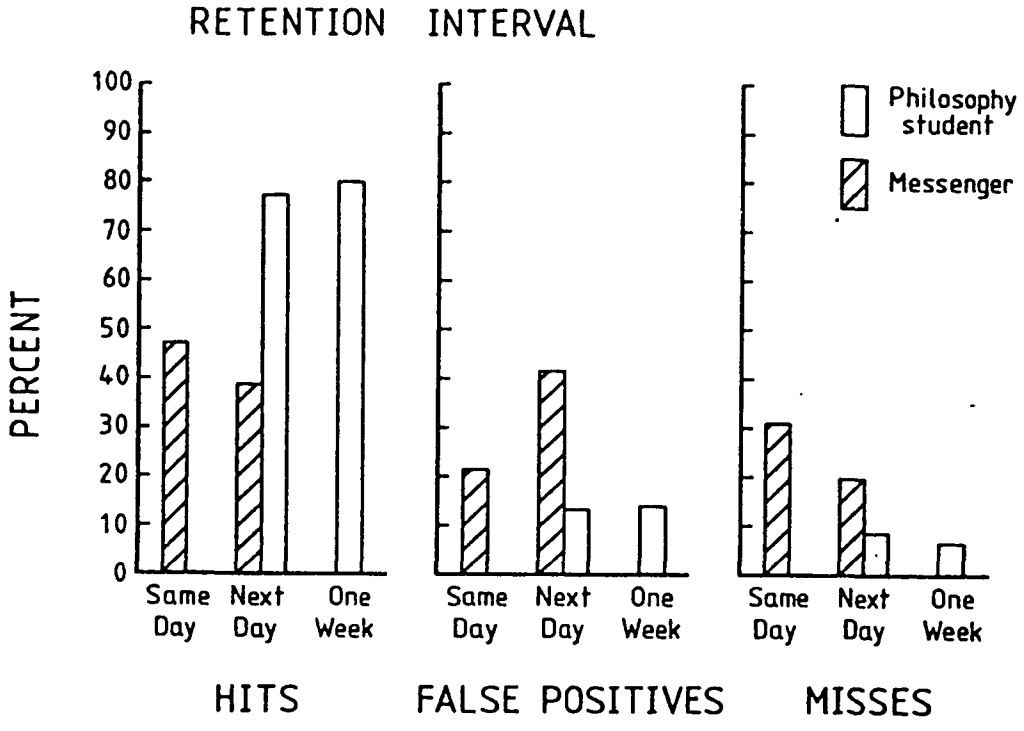

Figure 5. Showing percentage hits, false positives and misses as a function of retention interval.

Inspection of the graphs in figure 5 reveals that the philosophy student was more readily identified than the messenger. The higher recognition of the philosophy student probably results from the philosophy student attracting considerably more attention than the messenger, the episode with the philosophy student was at the commencement of the lecture whereas the the messenger appeared at the end of the lecture when people were busy with their note taking and this later event was not incongruous.

It is difficult to draw any conclusion from the graphs of figure 5. As a result of different target persons being used on the different days and differential recognition of these target persons. Even after one week, recognition of the philosophy student showed no sign of declining. (Chi square = 0.65, Df = 2, N.S.) However for the messenger as retention interval increased false recognition rate increased, this increase being at the expense of hits and misses. (Chi square = 4.48, Df = 2, $0.2 > p > 0.1$)

Live versus Photographic Lineups.

The pattern of responses for the live and photographic lineups are presented in figure 6.

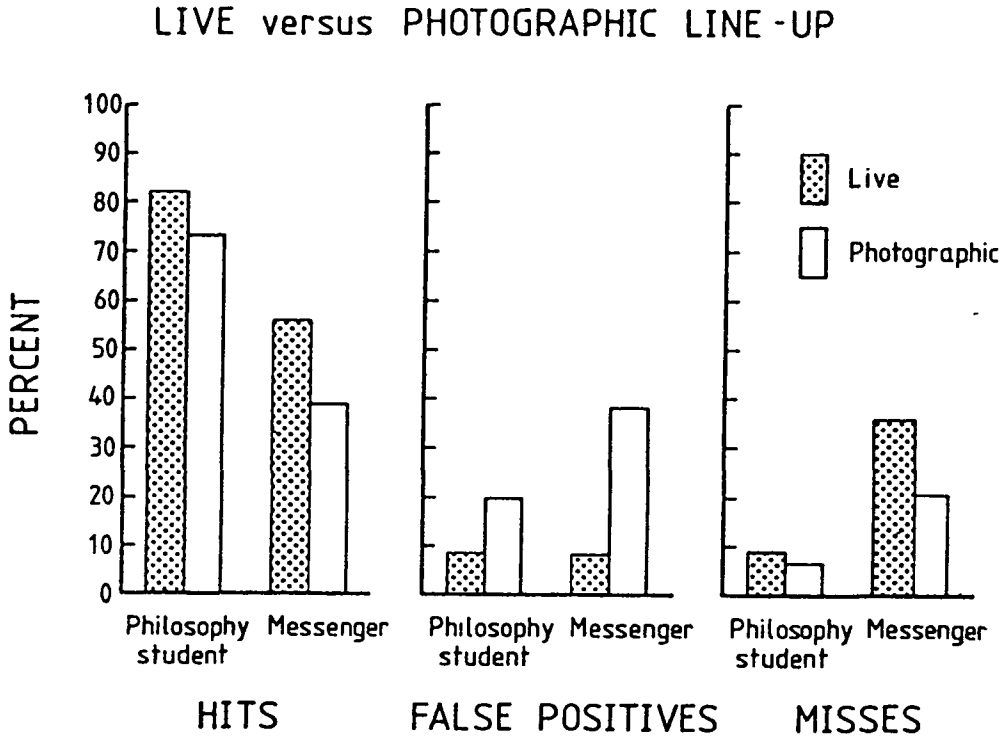

Figure 6. Showing percentage hits, false positives and misses as a function of a live or a photographic line-up.

The two most important features of the data in figure 6 are the higher hit rate, and lower false positive rate for live lineups. Another important feature is the higher rate of misses for live lineups. Statistical analysis indicated the pattern of responses for live and photographic lineups was different when the messenger was being identified. (Chi square = 8.19, df = 2, $p<0.05$) Although the response pattern for the philosophy student was not statistically significant, it follows the same trend. (Chi square = 3.87, Df = 2, $0.2 > p > 0.1$)

Our results suggest that live lineups are a much more satisfactory way of establishing the identity of the offender than photographic lineups. Not only do live lineups increase the probability that the offender will be identified, but they also reduce the probability of some other person being falsely recognised.

It is to be noted that our results are consistent with those obtained by Hilgendorf and Irving (1978). Hilgendorf and Irving required witnesses to view either a live or a photographic lineup in an attempt to identify persons seen earlier. When the target persons were not included in the lineup. They found that witnesses were more likely to falsely identify someone in a photographic lineup.

Prior Description

The findings with respect to the effect of prior description are presented in figure 7.

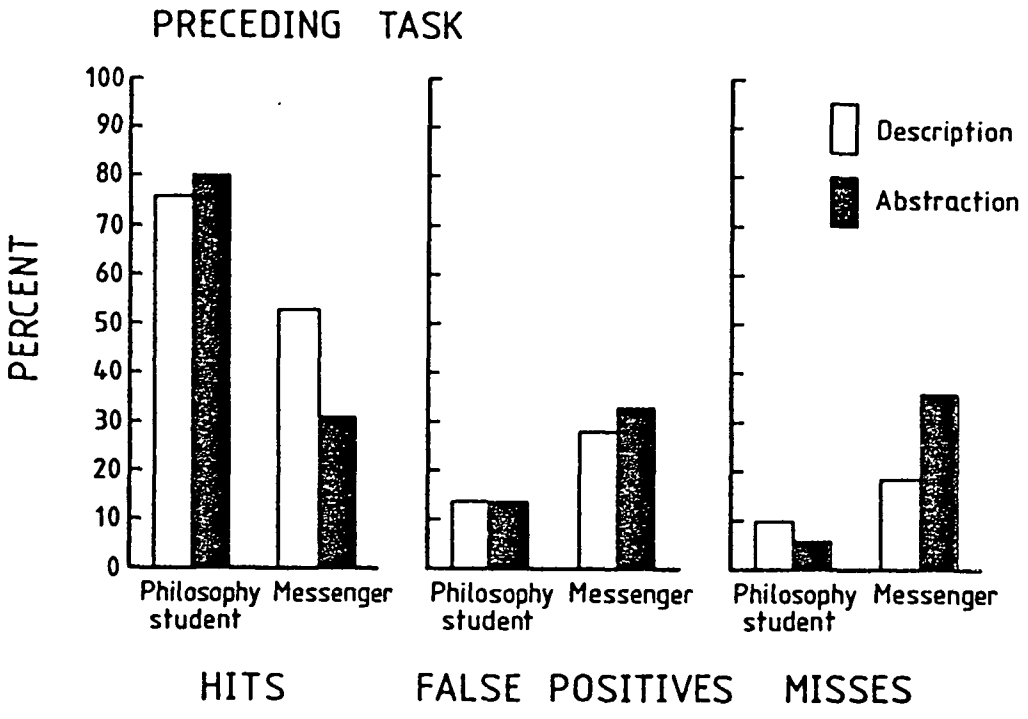

Figure 7. Showing percentage hits, false positives and misses as a function of preceding task.

Inspection of the graphs in figure 7 shows an absence of any consistent pattern. Prior description had no effect on the identification of the philosophy student (Chi Square = 0.77, Df = 2, N.S.) but it does appear to have facilitated the identification of the messenger. (Chi square = 5.20, Df = 2, $0.1 > p > 0.05$)

Previous research as to the effect of prior recall on subsequent recognition, has produced apparent contradictory findings. Darley and Murdock (1971) found that immediate recall of a series of short word lists facilitated recall in a final recall test for items of all lists but did not do so for a final recognition test of all items. In contrast, Maudlin and Laughlery (1981) found that recognition of a face was facilitated by prior construction with an identi-kit.

It is difficult to draw any meaningful conclusions from the findings of Darley and Murdock and Mauldlin and Laughery as one study used words and the other faces as the to be

remembered material, and both tasks differed somewhat from ours. However one way of reconciling the inconsistent pattern in our study and the apparent contradictory findings of Darley and Murdock is by assuming that correct responses on the recognition test can result from two different processes: template matching and recall. With template matching the face-pattern matches that of the memory-pattern and thus appears familiar, with the recall process lists of features are recalled and if these are possessed by a person in a lineup, he is selected. To the extent that template matching fails recognition responses may depend on the recall processes. Given that prior recall will facilitate subsequent recall, "recognition" will be facilitated when the recognition response is driven by the recall process.

If the analysis of recognition responses into template matching and recall processes is valid then it would be expected that, for the identification of the messenger, where prior description facilitated identification, there should be a correlation between recall and identification. There was not: point biserial indicies which ranged from -0.20 to +0.20 were not significant. The absence of correlation between description and recognition was found in earlier studies by Thomson and Meldrum (1982) and contrasts with a positive correlation between recall and recognition when the experimental material is words.

The conclusion to be drawn from the correlation analyses with respect to the judicial system is that no attempt should be made to exclude those witnesses who are unable to give an accurate description of the offender. Witnesses who give good descriptions are just as likely to be unable to recognise the offender and falsely recognise an innocent person as witnesses who give poor description.

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Psychological fiction in the court room: and they did not live happily ever after

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Psychological fiction in the court room:

and they did not live happily ever after

The judicial system is one component of the total legal system. It involves all aspects to do with the conduct of the court during a trial, procedures which are necessary to the initiation of that trial and procedures related to the implementation of the court's decision. I have defined the boundaries of the judicial system sufficiently broadly to encompass criminal and civil proceedings but my paper will focus on the judicial system in relation to criminal proceedings.

I am assuming that the primary objective of our judicial system should be meting out of just and equitable treatment to persons appearing before the courts. My second assumption is that justice and equity are likely to be achieved only if the court's decisions are based on all available relevant facts and a fair impartial interpretation of the laws.

The object of this paper is not to suggest techniques that may be used by the enterprising advocate in the court-room. Rather, my goal is to persuade you, on the basis of findings of experimental psychology, that certain aspects of our present judicial system militate against fair and just decisions. My assessment of the judicial system has been made on the premise that an efficient judicial system is one which is designed to take into account the capacities and competencies of the users. This principle underlies much of the research of engineering psychology and human factors. Safety and comfort in industry, in the home, and on the roads have been improved significantly by machines, appliances, cars and roads being designed to accommodate the limits of the human user.

Two issues will be canvassed in this paper. The first issue concerns factors which may influence judgment and decision making in the court-room, the second, concerns the validity of eye-witness testimony and

identification evidence.

Decision making: relevant and irrelevant facts.

My starting point is the assumption that the more a decision or judgment is based on relevant facts, the more likely that decision is a correct or appropriate one. Conversely, the more a decision is based on irrelevant facts then the more likely that decision is incorrect or inappropriate. In this section I propose to examine the likely effects on the court's decision of such factors as the attractiveness, demeanour and inadmissible evidence.

Attractiveness. The impact of physical characteristics is illustrated nicely by a study of Walster, Aronson, Abrams, and Rottmann (1966). Walster et al organized a dance for new first year university students. The students were informed that they were to be computer-matched and to this end were required to complete an interest profile. Walster et al also had information about the students' IQ and scholastic attainment in high school. In addition to this information, the researchers had each student rated on an ugliness scale. The students were in fact not matched on their interests, IQ or attractiveness but were randomly paired. During the dance, students were asked to indicate how much they were enjoying the dance and what they thought of their date. Some time after the dance, the researchers interviewed the students to ascertain how many had continued dating the person to whom they had been matched for the dance. The researchers found that the best predictor of whether a person was enjoying the dance, whether the person liked their date, whether the person continued dating their dance partner was the physical attractiveness (as measured on the ugliness scale) of their partner.

Of course, it may be argued that apparent importance of physical attractiveness in dating behaviour and liking people is perfectly reasonable and not surprising. However, other studies have shown that

physical attractiveness of a person can have a similar influence on judgments of totally unrelated attributes. In a study by Landy and Sigall (1974) people were asked to grade an essay which had previously been judged by a panel of experts as good or bad. There were three different conditions. In one condition there was a photo of a most attractive looking person, in the second condition there was a photo of an ugly person, and in the third condition there was no photo. People who were doing the grading of an essay with a photo appended were told the photo was a photo of the writer of the essay. The results of this study showed that the mark assigned to the essay was strongly influenced by the attractiveness of the person in the photo. This influence was particularly evident for the bad essay condition - the combination of a poor essay written by an ugly person was a lethal one. Sigall and Ostrove (1975) have explored the effects of beauty in a simulated courtroom situation. Participants in this study were given details about an offence of which the accused had been found guilty. They were asked to indicate the length of imprisonment they would impose for such an offence. The offence of the convicted person for one group of participants was burglary, for another group it was fraud. One third of the files for both the burglary and the fraud offences had a photo of an attractive person appended, one third had a photo of an unattractive person, and one third had no photos at all. The results were interesting in that there was an interaction between the type of offence and attractiveness of offender. Lighter sentences were imposed for an attractive burglar than for an unattractive burglar, but heavier sentences were handed out for an attractive swindler than for an unattractive swindler. The explanation given by the participants was that attractive people must have been forced to burgle through necessitous circumstances whereas attractive swindlers were deliberately using their natural beauty to win the confidence of their victims and therefore should

receive no sympathy.

Demeanour. Not infrequently it is asserted that the guilt of the accused or the reliability of the witness can be better judged by non-verbal behaviour. Examples of non-verbal behaviour that are said to reflect a persons emotions are posture, facial expressions, and manner of giving evidence in the witness box - these being elements of what is referred to as demeanour. This viewpoint is reflected in the statement of the court in R v Simic,[1] a Victorian case. The Full Court of Victoria approved the following remarks of the trial judge, made in reference to an unsworn statement.

> It is for you to determine the force and persuasiveness of the evidence of the accused in those circumstances and to determine the weight and reliance which you are prepared to place upon the evidence that he has given in the form of an unsworn statement to you from the dock, particularly, as one of the most significant indications of the reliability and honesty of a witness is to watch his reactions and judge his demeanour when asked his or her evidence in question and answer form and when subjected to cross examination. (my italics)

Research findings give little support for such a claim. For the most part, body language is neither a reliable nor valid means of judging a person's feelings or emotions. Landis (1924a, 1924b) photographed faces of people when the people were confronted by a number of very different emotional evoking situations. Photographs were taken when people were required to: reach in darkness into a bucket containing live frogs, inspect

[1] 1979 VR 497

pornographic pictures, and experience the pungent aroma of ammonia when sniffing a bottle labelled syrup of lemon. An examination of the facial reactions for the different situations revealed that there was as much variation between the responses of people to a particular event as between the responses of a particular person to the different events.

Context plays a very important role in the interpretation of facial expressions. Without a knowledge of the context, emotions assigned to a facial expression are likely to cover a wide gamut of emotions. Russian film directors Kuleshov and Pudovkin (cited in Geldard 1962, p. 46) have demonstrated that context may at times be almost the sole determinant of emotion assigned to a facial expression. They filmed the face of an actor in a quiet pose and then showed that pose in the context of a plate of soup, in the context of a coffin which contained a dead woman, and in the context of a little girl playing with a furry toy bear.The Russian directors commented:

> When we showed the three combinations to an audience which had not been let into the secret, the result was terrific. The public raved about the acting of the artist. They pointed out the heavy pensiveness of his mood over the forgotten soup, were touched and moved by the deep sorrow with which he looked on the dead woman, and admired the light, happy smile with which he surveyed the girl at play. But we know in all three cases the face was exactly the same.

However, there are two situations where the emotions of an individual may be judged accurately by his or her facial expression. The first situation is where the person whose facial expression is being observed is well known to the observer. Thus, for example, an individual may learn to

"read" the facial expressions of his or her spouse. This skill probably requires a knowledge of the repertoire of the spouse's facial expressions and a knowledge of the contexts in which the different facial expressions occur. The second situation is when facial expressions are posed and these expressions are stereotypes of different emotions. Note that even in the posed situation accuracy in labelling the emotions is restricted to very common emotions such as happiness, surprise and fear - no distinction being made between fear, anxiety and guilt. (Ekman, 1973, Feleky, 1914; Langfeld, 1918a, 1918b; Ruckmich, 1921).

It is also commonly held that persons who recall events or recognize people confidently are likely to be more accurate. The basis for this belief probably derives from our introspections about our own memory behaviour and our observations of the memory behaviour of people we know well. Studies of signal detection (Green & Swets, 1966) suggest that our introspections are erroneous. However, even if it were the case that, for any given individual, there is a positive relationship between degree of confidence and recall and recognition accuracy, extrapolation from a within-person observation to an across-person observation is quite invalid. Thus, the confidence exuded by a cautious person when he is very sure of his or her recall or recognition may be much less than the confidence exhibited by a less cautious person who is in fact quite inaccurate in his recall and recognition. Studies which have examined the relationship of confidence and memory accuracy (Deffenbacher, Brown & Sturgill, 1978; Clifford & Scott, 1978; Lipton, 1977; Wells, 1978; Wells, Lindsey & Ferguson, 1979) have found no reliable relationship between the two.

The studies and statements that I have been reviewed suggest that the weight given by courts to the evidence of a witness may be influenced by such factors as attractiveness and demeanour. It is clear that testimony

accuracy is unrelated to the physical attractiveness of the witness, that confidence exuded by the witness is not a reliable predictor of his or her accuracy, that identification of facial expressions is unreliable. Thus, to the extent that these factors are permitted to influence the decision of the court, that decision may be invalid. Far from approving the use of demeanour, as a useful guide in assessing the witnesses' evidence as has been done in Simic's case, courts should ensure that the influence of this factor is minimized.

There is a second reason for attempting to eliminate the influence of attractiveness and demeanour, in the court room. In our adversary system, the protagonists have the opportunity of testing the witness's evidence under cross examination. To allow such factors as physical attractiveness, and demeanour or confidence to influence the outcome of the court's decision is to admit factors which cannot be subjected to the scrutiny of cross examination.

Inadmissible evidence. The tendering of inadmissible evidence in a trial by the witness may place the judge in a dilemma. If he believes that the inadmissible evidence is so prejudicial as to preclude a fair trial he will abort the trial. If, on the other hand, the judge feels the impact of the inadmissible evidence can be minimized, he may instruct the jury to disregard or "forget" that evidence. Implicit in such a direction is the notion that the jury members can erase that information from their memory, or can ignore it, or can compensate for its effects. The question is not just whether at the end of the trial the juror remembers that certain evidence is to be ignored but also what effect that inadmissible has on the jury's interpretation of subsequent evidence.

Asch (1946) was one of the first persons to demonstrate that prior information contaminates the interpretation of subsequent information. Asch presented people with lists of adjectives said to describe a person.

The participants were asked to complete the description of the person. For one group of people the first adjective was "warm", for the other group the first adjective was "cold". Apart from the first adjective, all other adjectives for the two groups were the same. The descriptions of the person given by the two groups were very different. This finding was confirmed by Wishner (1960). More recently Allen (1982) found that weather forecasting by the weather forecasters depended very much on the order of information provided them.

The question as to whether or not people can disregard inadmissible evidence has been explored by Margaret Topley, a Ph.D. student of mine. Topley presented her subjects sets of five sentences which described a particular person with the request that they form an impression of the person and then rate the person on a likability scale. Topley varied the presence or absence of positive or negative statements about the person in question, the presence or absence of instructions to forget, the extremity of the positive or negative statements, and the emphasis of instructions to forget. Examples of the types of statements are as follows:

- Extremely Negative: He poisoned his wife's dog because it barked in the night
- Moderately Negative: He kicked down the door when he found it locked against him
- Moderately Positive: he liked to play cards occasionally with his children and their friends
- Extremely Positive: He gave up his holiday to be near his mother through her illness
- Neutral: He came through the door so quickly that the curtain rustled

There were two instruction conditions, a weak condition and a strong condition:

Weak: When you see asterisks on a card you are to forget the immediately preceding statement

Strong: Imagine you are a member of a jury. When you see asterisks on a card immediately preceding statement is an inadmissible one. You must ignore that statement so you will not be influenced by it.

The results of interest are the difference in likability when the positive or negative statements (the inadmissible evidence) were not presented to the subjects and when subjects heard the inadmissible evidence and were asked to disregard it. The results are presented in the Figure 1.

Insert Figure 1 about here

The most salient feature of the graph in Figure 1 is the interaction of emphasis of instruction with type of inadmissible statement. For both weak and strong instructions subjects are able to ignore or compensate for extreme inadmissible statement. However with strong instructions the effects of moderately negative inadmissible statements are not eliminated. The findings of this study suggest that it is not the extreme statements that may prejudice a fair trial but rather the moderately negative ones. The extreme statements apparently can be identified and ignored or compensated for, but moderately negative statements cannot be readily isolated and continue to exercise an influence on the impressions being formed.

Implications of research findings. I have argued elsewhere on the basis of the findings of the studies reviewed here that the decision making body should not be present while the testimony is given but instead be provided a transcript of the trial proceedings and make their judgment on what is in the transcript.(Thomson, 1984). This procedure would allow the elimination of irrelevant factors such as attractiveness and demeanour of

witnesses and accused, and at the same time permit editing out of inadmissible evidence. Given the unlikelihood of the decision-making body being excluded from the courtroom, the very least that should be done is that it be mandatory for everyone in the decision-making body to receive a transcript of the trial proceedings. The provision of a transcript will allow the members of the decision making body the opportunity of reviewing the admissible facts rather than relying on memories which have been influenced by irrelevant factors. Further, it would allow the decision making body to have all the facts at its disposal, not just those ones which happen to be remembered.

Eyewitness testimony and identification.

A further examination of criminal law process reveals other psychological fictions. For example, the assumption that members of the jury can understand, much less remember, all of the evidence bears little resemblance to the truth. Likewise, the acceptance that what a person says in court is the most accurate account of the event in question is quite ludicrous. What a person recalls in court has been contaminated by countless other events; by hearing and reading other accounts of the event, by rehearsing the acount of the event with friends, police and lawyers (see Bartlett, 1932; Carmichael, Hogan, & Welter, 1932, Loftus, 1975; Loftus, 1976; Loftus, 1978, Loftus, Miller & Burns, 1928).

In this section I shall review some of the memory and non-memory factors that are likely to effect the behaviour of the witness in the identification situation.

Identity constancy. Identity constancy refers to the fact that the identity of an object endures despite transformations in its appearances. This problem was studied extensively by Piaget (1954), Piaget and Inhelder (1962) and Bruner (1966). According to Piaget (1954) and Bruner (1966), the child who focusses on perceptual attributes will not recognize an

object as being the same when some of these perceptual attributes change. Conversely, different exemplars of a category will be judged as being the same object if they have similar perceptual attributes. What is so striking about the child's behaviour is that he or she will judge an item as being different when its appearance has changed despite the fact that the child has observed the transformation. Likewise the child may state two objects have the same identity despite the fact that both are present contemporaneously. That an object or person remains the same despite transformations is something that is learned by the child during his or her first four to five years. Similarly, it is during this time that the child learns that an object can exist in one place only at a given time.

Older children and adults experience no difficulties at all in knowing an object is the same even with radical transformations so long as they observe the transformations. However, enormous difficulties are experienced when the transformations of the object or person occur in the absence of the observer. How does the observer decide whether the object or person in his field of vision is the same or a different person from the one seen before? The observer's decision must be an inferential one. That the object or person appears familiar is no guarantee that that object or person has been seen before. That an object or person appears unfamiliar does not necessarily mean that that object or person was not seen previously. The problem is illustrated nicely by an example given by Piaget. One day Piaget took his young child for a walk. As they walked they saw a slug crossing the track so they stopped to inspect it. Sometime later, some distance further on, there was a slug crossing the track. The young child pointed to the slug and exclaimed to his father "There's that slug again daddy". While we may smile at the child's behaviour, we too would probably be hard put to decide whether or not it was the same slug if we did not know that slugs cannot travel as quickly as humans. The

difficulty in deciding whether or not two perceptual representations are representations of two different objects or people or two representations of the same object or person is illustrated by the photos in Figure 2. Compare each pair of photos and judge whether they are photos of the same person or photos of different persons.

Insert Figure 2 about here

The first pair of photos are photos of the same person, the next pair are photos of different persons, the next pair are photos of the same person, and the bottom pair, photos of different persons.

The conclusion that I draw about the identification process is that, for the most part,all that witnesses should be asked is whether the person in a line-up looks like the offender. It should be left to the jury to decide whether on the evidence before them the identity of the accused and the offender are the same.

Optimal identification conditions. There is now an extensive body of literature which demonstrates that reinstatement of original context dramatically improves recognition performance. The facilitating effect of context has been found when the to-be-remembered material is words (Thomson, 1972; Tulving & Thomson, 1971; Winograd, Karchmer & Russell, 1971), pictures of objects (Feingold, 1915) or slides of persons (Davies & Milne, 1982; Memon & Bruce, 1983, Thomson, 1981, 1982).

In a series of experiments I have conducted over the last 10 years slides of persons have been shown to hundreds of people who acted as subjects. After viewing these slides the subjects attempted to identify the persons they had seen. There were four main conditions in the identification task and these conditions are represented in Figure 2. In one condition a person who had been shown in the previous series of slides

(an "old" person) was depicted doing the same activity, wearing the same clothing and in the same setting as he or she had been seen previously (same person same context condition, top pair in Figure 2). In the second condition, an "old" person was presented but this time he or she was doing a different activity, wearing different clothing and in a different setting (same person different context condition, 3rd pair in Figure 2). In the third condition a new person was shown but this new person was shown doing the same activity, wearing the same clothes and in the same setting as someone seen in the previous series of slides (different person same context condition, bottom pair in Figure 2). In the final condition, a new person was depicted in a new context (different person, different context, 2nd pair in Figure 2). In the identification test, subjects were presented a series of slides, one at a time, and asked to indicate which person they recognized. Results of one of these experiments are presented in the next slide.

Insert Table 1 about here

The pattern of the date presented in Table 1 is clear and unequivocal. Reinstating the context dramatically improved recognition from 33% to 91%. It also resulted in a small increase in false recognition from 15% to 18%.

A number of variations of this experiment has been carried out. First, I ascertained the separate contributions of activity, clothing and setting. The results of this next experiment indicated that all of these things contributed to the recognition performance. Another experiment was conducted to establish what effect context had on recognition of extremely familiar persons. The results of this study are presented in Table 2.

Insert Table 2 about here

The results contained in Table 2 indicate that recognition of familiar person is not likely to be affected by a change of context. In the final experiment a two-person identification parade was used. The activity, clothing and setting of both persons was identical so that subjects could not select someone on the basis of their recognition of the clothing.The results of this experiment confirmed those of the previous ones. Re-instatement of context enhanced recognition performance, identification of the "culprit" increasing from 33% to 84%.

Memory and non-memory factors at the identification parade. In an identification parade the witness is required to identify the person who was the offender. What is of crucial importance is that the witness make his or her identification responses on the basis of their memory of that event - called episodic memory by Tulving (1972). While it is almost impossible to prevent the witness's memory being contaminated by subsequent events, this contamination can be minimized by having the identification parade as soon as possible after the offence has been committed.

However, there are factors which may influence the witness's behaviour at the identification parade which should be and can be eliminated. One of the problems is that the witness comes with an expectancy that the offender will be in the line-up and comes remembering fragments of information about the offender. What he or she may then do is to select the person who is the best fit. The likelihood of the witness acting in this way will increase if the accused or any other member of the line-up fits a criminal stereotype - shifty eyes, cauliflower ears etc., or is noticeably different from other members of the line-up.

Aside from physical characteristics, the accused may be conspicuous in

the line-up because he or she is distressed. The accused knows that he or she is the suspect and may still be in a state of shock from being accused of the offence and detained. The distressed state of the accused would quickly attract the attention of the witness and it would need little intelligence on the part of the witness to know who the suspect is. In a case in which I was involved the accused woman was sobbing throughout the parade.

A similar problem exists in a case soon to come before the court in Victoria where the identification was made by photographs. The witnesses were shown a series of the accused's own photographs. The photographs were photographs of groups of people taken at parties. The questionable aspect is that the accused, and only the accused, was present in most, if not all, of the photographs

Finally, identification behaviour may be influenced by implicit or explicit pressure on the witness to respond. Asch (1951) has demonstrated that people will make a judgment quite at variance with what they believe to be the state of affairs in responses to social pressure. In a study I reported some years ago (Thomson 1981) I showed that urging "witness" to make sure the target persons ("offenders") were identified produced a much higher level of selection (both correct and false recognition) than witness who were asked to be careful not to falsely identify someone.

Concluding Remarks. Since identification is such a critical aspect of the criminal law procedure anything which improves identification procedures should be given serious consideration. On the basis of research findings discussed in this paper it would appear that identification of the offender should take place under conditions which match, as far as possible, those condition prevailing at the time of the offence.

Adoption of this recommendation would probably mean that members of the line-up are presented consecutively rather than all together as tends

to be the case at present. If the present type of line-up continues the witness should be required to view more than one line-up and informed of this requirement. This modification should reduce the expectancy of the witness that the offender will be in the line-up. The third area in which identification procedures may be improved is to ensure that the accused, to an outside observer, is not noticeably different from other members of the line-up. Assessment of whether the accused is noticeably different can be made by asking non-witnesses to select the person they think is most likely to commit the particular offence. In addition, the identification proceedings should be video taped so that the court can gauge the fairness of these proceedings. If courts continue to insist that demeanour of witnesses is helpful in giving weight to the different testimony, then the court should observe the identification behaviour of the witness at the identification parade, not the identification behaviour in the court room.

To implement the above recommendation will require sophisticated personnel and equipment and a mode of operation which is not compatible with police modes of operations. There would appear to be good grounds for establishing an identification unit which is independent of the police force. There would be a number of advantages in having such an organization. Its findings would be freely available to prosecutor and defence. It would have no vested interest in any particular accused person being selected. Currently in Victoria an Institute of Forensic Pathology is being established at Monash University. The purpose of this Institute is to have well qualified persons carrying out analyses which are available to people and agencies as well as the Police Force. The functions of this Institute might well be incorporated into an Institute of Forensic Science which would be responsible for, among other things, identification tests.

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Table 1. Mean percentage of recognition responses as a function of same or different context (from Thomson, Robertson & Vogt, 1982, Experiment 1).

	Text Context	
Person	Same	Different
Same	91	33
Different	18	15

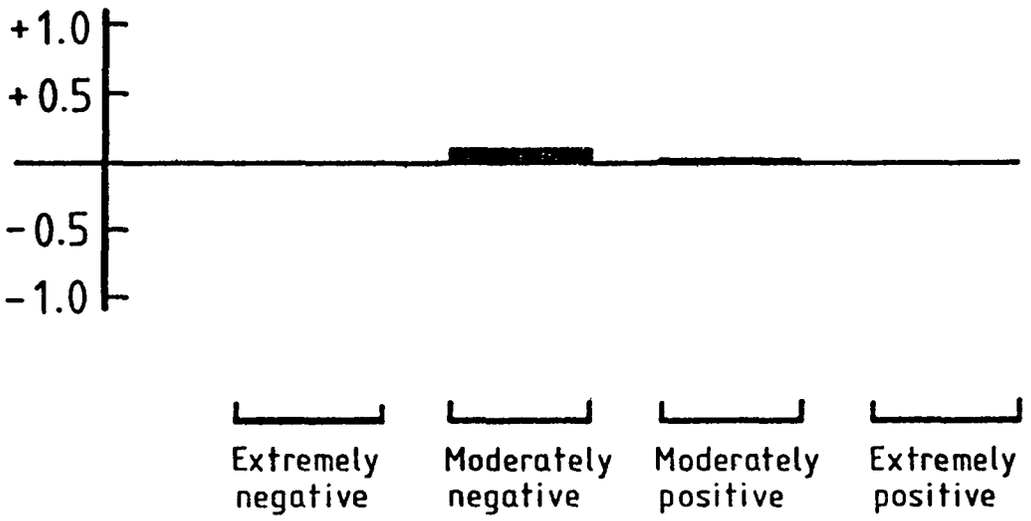
Table 2. Mean percentage of recognition responses as a function of familiarity and context (from Thomson, Robertson & Vogt, 1982, Experiment 5).

	Unfamiliar persons		Familiar persons	
	Text Context		Text Context	
Person	Same	Different	Same	Different
Same	98	39	100	100
Different	27	18	0	2

Figure 1. Impact of inadmissible statements on rated likability of a person when raters have been asked to disregard inadmissible statements.

Figure 2. A test of identity constancy. Are the pairs of photos two photos of the same pairs or photos of two different persons? See text for correct answers.

(A) WEAK INSTRUCTIONS



(B) STRONG INSTRUCTIONS