Default Values in Eyewitness Descriptions

A Problem for the Match-to-Description Lineup Foil Selection Strategy

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Study 1 ($N = 205$) reveals that witnesses often provide vague descriptions. Witnesses leave out information such as sex and race that they certainly noticed (default values). Study 2 ($N = 89$) weakly supports the claim (Luus & Wells, 1991) that correct identification rates from lineups are enhanced by selecting foils who fit the description of the criminal rather than foils who are highly similar to the suspect. Study 3 ($N = 210$) indicates that false identification rates can be inflated by selecting lineup foils who fit vague descriptions of the criminal but otherwise differ from the suspect on default values.

Luus and Wells (1991) and Navon (1992) provided compelling arguments for the superiority of selecting lineup distracters (foils) to match the description of the criminal provided by the witness (match-to-description) rather than matching foils to the appearance of the suspect. They argued that match-to-description permits extensive variability in the appearance of lineup members. Such variability assists the witness selecting the guilty party from a lineup. A policy that requires matching lineup foils to the appearance of the suspect (similarity-to-suspect) either reduces the ability of witnesses to identify the criminal from the lineup (if the foils are too similar); or leaves the lineup subject to criticism in court on the grounds that the foils are noticeably different from the suspect (if extensive variability of appearance still exists in the lineup). In addition, it is impossible to specify how similar is similar enough, thus making the task of constructing lineups unreasonably difficult for police forced to use the similarity-to-suspect strategy.

With regard to identification of innocent suspects, Luus and Wells believe that innocent suspects are not at undue risk when all lineup members match the witness' description of the criminal. They argue that "the similarity-to-suspect strategy is not distinguishable from the match-to-description strategy when the suspect is not the culprit (p. 51)" because the witness will not prefer the innocent suspect to any other lineup member if all lineup members fit the initial description of the criminal. Matching foils only to the description of the criminal is thus claimed to enhance the probability of correct identification without resulting in a biased identification procedure.

However, there may be a problem with selection of lineup foils by match-to-description. Innocent suspects may be at risk when the witness provides a limited or vague description of the criminal and the lineup foils, although selected to match the description, are noticeably different from the suspect in appearance. In particular, selecting lineup foils to be maximally different from the suspect may leave the suspect as the best fit to the witness' description even when all lineup members match the description. This could occur if the suspect stands out as prototypical of the description. This may be particularly likely if witnesses habitually fail to mention, but not to notice, some features.

The issue of completeness of descriptions is important. Luus and Wells (1991) state that the number of features to be matched in all lineup members using the match-to-description strategy "has a natural limit . . , namely, wherever the eyewitness stopped in his or her *free recall of characteristics*" (pg 49, emphasis added). One problem with this approach is to determine exactly which part of a description was given in free recall versus in response to specific questions.

Consider the following hypothetical interaction between a witness and police officer. The witness has reported seeing someone run out of a store after hearing shots fired:

> Officer: "Can you describe the person?"
> Witness: "Um . . . short, with dark hair, and an average build."
> Officer: "Anything else?"
> Witness: "No, I can't think of anything, . . . like what else?"
> Officer: "Well, was the person white or black?"
> Witness: "Oh, white and not very old."
> Officer: "About how old?"
> Witness: "Maybe early 20s . . . and wearing glasses."
> Officer: "Any scars, moles, birthmarks, that sort of thing?"
> Witness: "I think there may have been a mole on the cheek."
> Officer: "Which cheek?"
> Witness: "The left one, I think."

Now consider a lineup constructed for this case. Police arrest a 24-year-old white male who is 165 cm tall, weighs 63 kg, and has short black hair and wears glasses. A photo array is constructed with 9 foils all of whom are short with dark hair, of average build, in their early 20s, and wear glasses. No one in the lineup, including the suspect, has a mole on the left cheek. Does this lineup meet the criteria for selection of foils as described by Luus and Wells? Apparently it does.

An absurd set of foils can be justified using this logic. Of the 9 foils, 3 are female; 3 are Chinese, and 3 are Black. Information about race was provided only

in response to a specific question, not free recall. No information about sex was requested nor given. Of course, this examples relies on the principle of *reductio ad absurdum;* no one would accept such foils nor do Luus and Wells or Navon intend their recommendations to result in such lineups. If either race or sex is left out of a description under free recall, these features still must be matched to the suspect. Unfortunately, this raises the issue of what other features may be sufficiently important to match, even if not mentioned by the witness.

Failure to mention a feature during free recall may indicate that there is a *default value* rather than that the witness failed to remember the information. For example, race may be omitted from descriptions when the crime occurs in a racially homogeneous community and the criminal is a member of the dominant group. Sex may not be mentioned if the crime is typically committed by one sex (e.g., rape). Since these features must always be matched, the issue may seem unimportant. However, other less dramatic features may also be omitted from descriptions; e.g., facial hair may not be mentioned if a male criminal was clean shaven.

Police may fail to ask for clarification of the description because they share the same expectations as the witnesses. As a result, default values may not be corrected even when specific questions follow an open-ended (free recall) description. Vague or brief descriptions thus present a serious problem for the match-to-description strategy of foil selection, particularly when the description is limited to information given in free recall.

Match-to-description as a method of selecting lineup foils may be dangerous for innocent suspects. The less detailed the description provided by the witness, the greater the possibility that a biased lineup could be constructed by selecting foils that differ substantially in appearance from the accused. This could result in an obviously biased lineup if the accused matched several default values not shared by the foils. Wells, Rydell, and Seelau (1993) state that using the match-to-description strategy, all available foils are first sorted to leave a pool including only those who fit the description provided by the witness. The lineup foils are then selected from this reduced pool so as to be maximally different from the suspect. The implications of this strategy for false identification rate require investigation.

Three questions must be addressed to assess the importance of our concerns: (1) Do witnesses often provide vague descriptions? (2) Does the match-to-description strategy actually increase correct identification rates? (3) Will false identification rates be inflated by a strategy of selecting distracters who minimally fit the description provided by the witness but who are otherwise chosen because of their lack of similarity to the suspect? If vague descriptions are common and dissimilar distracters inflate false identification rates, a fourth concern would be to find a method of reducing false identifications while using the match-to-description strategy.

Below we present three studies: The first study explored the completeness of descriptions using both laboratory data and newspaper descriptions of real criminals. The second study examined the use of the match-to-description strategy of distractor selection as a means of increasing correct identification rate. The final

study examined the effects of distractor selection strategy on false identification rate and the use of sequential lineup presentation to reduce false identifications.

STUDY 1: DESCRIPTIONS OF CRIMINALS

To the extent that descriptions of criminals contain relatively limited amounts of information and fail to include major features of the criminal, the match-to-description strategy of foil selection will be subject to problems. Highly unlikely foils may be included in the lineup, particularly if salient features such as facial hair or ethnic origin are commonly omitted because witnesses assume default values for these variables. To assess the amount and nature of the information included in eyewitness descriptions of criminals, data from previous staged-crime research and newspaper accounts of real crimes were examined.

Procedure

To assess the completeness of free recall descriptions of criminals, 20 descriptions of each of 5 confederates from staged crime studies were drawn at random from the files of the first author. Each witness viewed the theft of the experimenter's purse by a confederate who interacted with the witness at a distance of about 2 m in a well-lit room. He ensured that eye contact occurred at least twice before staging the crime. A few minutes after the staging of the crime, witnesses completed an open-ended description of the criminal in response to the instruction "Describe the person you saw take the experimenter's purse." Although witnesses subsequently completed a questionnaire asking for a detailed description of the criminal in response to specific items, only the first, free recall description data are reported here.

Students who witness staged crimes may provide substantially different descriptions than witnesses to real crimes. In addition, the students all witnessed a similar crime (theft of a purse) and the "criminals" in each study were all undergraduate males. Such homogeneity of crime and criminals is not the norm in real cases. For this reason, descriptions of 105 criminals published in the local newspaper in Kingston, Ontario (The Whig Standard) were also examined. In addition to providing a different sample of witnesses, the newspaper accounts represent a wide array of criminal events, thus increasing the generalizability of the results in two ways. The cases included armed robberies, assaults, sexual assaults, fraud, abductions, and attempted abductions. All descriptions published in the "Police/Fire Watch" section for the period January 1 to June 30, 1992 were used. All of the witnesses were adults. All descriptions were published in the paper the day after the crime. There is no way of knowing whether these descriptions include responses only to free recall probes; however, discussion with local police indicated that such a distinction is not recorded in their notes and that mixed questions are frequently used, much like the hypothetical example given earlier.

Each description (from student or newspaper) was examined for the presence of any descriptive information about the criminal. After the data were collected,

they were divided into 21 categories (see Table 1). The total number of pieces of descriptive information about the person were summed for each description. For example, if the witness described the criminal as having "a short, dark, crew cut," this would be counted as three pieces of information (hair length, color, and style). Describing someone as a "husky, 175 pounds" would count as two pieces of information (body build and weight). The only exception to this counting principle was that clothing descriptions were counted merely as "clothing mentioned" no matter how much detail was provided. This is not meant to imply that descriptions of clothing are not useful nor that they do not represent information recalled by the witness. Rather, information about clothing should not be of use in selecting lineup foils other than to avoid the clothing described by the witness as worn by the criminal at the time of the crime. Thus, described clothing is something to be avoided whereas described features of the person are desired in lineup foils.

Results and Discussion

The data strongly support our concern that eyewitness descriptions are frequently vague (see Table 1). Witnesses to staged crimes provided an average of 7.35 pieces of descriptive information about the person. When describing a criminal, students were most likely to describe clothing (99%). Hair color (90%) and

Table 1. Percent of Witnesses Reporting Features in Descriptions of Criminals

Feature	Staged crimes	Real crimes	Z
Race	43	24.8	2.75*
Sex	46	96.2	7.93**
Age	45	47.6	0.37
Size			
Height	86	47.6	5.84**
Weight	22	14.3	1.43
Body build	51	27.6	3.43**
Hair			
Color	90	38.1	7.76**
Length	68	25.7	6.07**
Style	50	3.8	7.46**
Face			
Eyes	43	2.9	5.79**
Glasses	4	1.9	0.89
Complexion	22	3.8	3.89**
Beard	21	8.6	2.50*
Moustache	22	5.7	3.38**
Eyebrows	1	0	1.02
Head shape	11	0.9	3.06*
Lips/mouth	2	0	1.44
Nose	1	0.9	0.70
Ears	0	0	0.00
Other features	7	2.9	1.35
Clothing	99	60.0	6.92**

Note: $*$ $\alpha < .01$. $**$ family wise $\alpha < .10$ for all comparisons.

height (86%) were also frequently described, although these descriptions were often vague as well. Most described hair color only as dark or light and references to height were often simply labels such as short, average, or tall. Even when numerical responses were given, often they were ranges such as 150 to 180 pounds rather than a precise value. Race, sex, and age were mentioned by less than half of the student-witnesses. Specific facial features such as the mouth, nose, or ears were rarely mentioned.

Witnesses to real crimes provided less information than witnesses to staged crimes, $M = 3.94$ versus 7.35, t (203) = 18.19, $p < .05$. The only information provided significantly more often by real witnesses than staged crime witnesses was sex of criminal. Even this could be attributable to taking the information from the newspaper. The newspaper description frequently stated "He was described . . . " Such descriptions were scored as indicating that the witness had specified the sex of the criminal. No characteristic other than sex was mentioned by as many as half of the witnesses.

Race of the criminal was included in less than half of the descriptions following staged crimes and less than one quarter of descriptions following real crimes. Given the high rate of accuracy when asked the race of a criminal, it is unlikely that witnesses did not notice this feature. A more plausible explanation for this finding is that criminals in Kingston are presumed to be white unless stated otherwise (a default value). Consistent with this reasoning, 98% of the witnesses to the staged crimes correctly reported that the confederate was white when asked explicitly about race. Less than 10% of descriptions of real criminals mentioned facial hair despite the fact that over 90% of the criminals described were male. Again, it seems most likely that this is due to nonreport of clean-shaven criminals rather than failure of witnesses to recall this information as such information is accurately remembered by most witnesses in staged-crime studies (e.g., Lindsay, Nosworthy, Martin, & Martynuck, 1994).

These results suggest that Luus and Wells' recommendation that free recall be used as the criterion of features to be matched in lineup foils is questionable at best. Of course, their position could be modified to state that the features described during the first interview of the witness be used as the critical list to be matched. This would avoid the issue of whether the features described were elicited with open ended questions versus specific probes.

If we assume that standard police questioning, including probes after free recall, will result in a fairly complete description, this might reduce the problem. However, the data from real eyewitness descriptions in newspapers suggests that either current police questioning is not sufficiently detailed to alleviate our concerns or witnesses remember too little of the appearance of criminals to provide detailed descriptions (although they clearly leave out some major features, i.e., default values).

Although it is possible that the descriptions in the newspaper represented only a fraction of the actual information provided to police, there are two reasons to doubt this. First, most of the descriptions were presented in a context implying or stating that police would appreciate assistance from the public in finding the perpetrators of these crimes. Obviously providing incomplete descriptions would

be counterproductive. Second, conversations with local police indicated that the descriptions provided are complete except in rare occasions when withholding information is deemed necessary. Although the frequency of report of various features differed in the staged-crime versus newspaper accounts (with greater detail generally found in the laboratory), direct comparisons are questionable given the diverse nature of the crimes and witnesses involved in the real cases in comparison with the staged-crimes. The only conclusion we draw from the direct comparison is that descriptions of real criminals certainly do not appear to be superior to the descriptions obtained in the laboratory.

The total number of pieces of information provided in both contexts is underestimated in the data reported as any mention of clothing was scored simply as "clothing mentioned." It was common for the description of clothing to be as or more detailed than the description of the person. Since lineup members should never appear in clothing similar to that described by the witness, this issue was not pursued (Lindsay, Wallbridge, & Drennan, 1987).

STUDY 2: EFFECT OF FOIL SELECTION STRATEGY ON CORRECT IDENTIFICATION RATE

This experiment tested the superiority of selection of foils by match-to-description rather than by similarity-to-suspect as a method of lineup construction. Wells, Rydell, and Seelau (1993) obtained data supporting the claim of increased correct identification rate using match-to-description. In this study, we sought partly to replicate their finding. More importantly for our purposes, we needed data to assist in the construction of photo arrays to test the possible biasing effects of this approach when the suspect is innocent (Study 3).

Procedure

Members of an off-campus, summer evening course in Social Psychology (final $N = 89$) were told that a student wanted to request their assistance with pilot work for this thesis to be conducted later in the year. At this point, the second author was introduced and spoke to the class for approximately 3 minutes explaining why it was important to conduct pilot work, that only a few minutes of the students' time would be required, and that the instructor had agreed that the data could be collected during class time. He described the research as concerned with memory and promised feedback about the results of the pilot work by the end of the course. Finally, he asked for a show of hands of those willing to participate (all volunteered), counted the hands while trying to make eye contact with each person, and left.

The instructor (first author) then informed the class that the study involved issues of eyewitness memory and that they would be tested on their memory for the man who had just spoken to them (target). Description forms were distributed and completed. After completing an open-ended description, students were asked to describe the target in terms of race, sex, age, body build (thin, average, or

heavy), hair length and color, presence of glasses and facial hair, and any other features they may have noted. Students also were asked to mark the forms with some form of identification and to remember the identifying mark for future reference.

Two weeks later, three target-present photo arrays were placed across the front of the lecture theatre and students who had been present the first evening (N = 89) were asked to examine one of the arrays in an attempt to identify the target. The arrays lay flat on the top of three tables widely spaced across the room and could only be seen when the student was directly in front of them; thus no student saw more than one of the arrays. Students were asked to form lines leading to each array. Assignment to conditions was haphazard rather than random. A few subjects were asked to change lines to ensure approximately equal Ns.

Photo Arrays

During the two weeks between exposure to the target and the identification procedure, the descriptions provided by the students were analyzed to produce a modal description of the target (most frequent response to each specific item). Most students described the target as a white (94%) male (100%), in his early 20s (88%), with short (85%) dark hair (80%), not wearing glasses (100%), having no facial hair (98%), and with no other distinguishing features (97%). (We ignored several reports of "soft spoken" as a distinguishing feature because that feature is not apparent from a photograph.) The target was considered of "average" (as compared to thin or heavy) build (88%). Body build was rated rather than height and weight because height was impossible to estimate from the head and shoulder photographs in the available pool of pictures and weight was difficult to estimate in the absence on a reasonable estimate of height. In each detail, the modal description is an accurate description of the target. As in Study 1, very few subjects (6.7%) mentioned any facial features.

A pool of 726 photographs of males (mostly undergraduates) had been rated or described on each of these features based on their appearance in the pictures. The modal description exactly matched the description of 199 photos in the pool for the features listed above. The 199 photos that fit the modal description were presented to 5 raters who assessed the similarity of each of the photos to the target on 7-point Likert-type scales (1 = *not at all similar;* 7 = *very similar*). Mean similarity rates were used to construct the photo arrays.

Three photo arrays were constructed. The similarity-to-suspect strategy was operationalized by choosing as lineup foils five pictures rated as among the most similar to the suspect (the two highest rated photos and three of the next five pictures that received identical mean ratings from the raters and appeared most similar to the confederate in the opinion of the first author). A "reasonable" version of the match-to-description strategy was operationalized by selecting one foil from the middle of each quintile of the faces ranked by similarity ratings. This resulted in an array with substantial variability in appearance and a high degree variability in similarity of the foils to the target and to each other. A biased match-to-description array was produced by selecting as foils five of the six pho-

tos rated least similar to the target but all fitting the modal description. (The picture rated as least similar was discarded because, in the opinion of the first author and despite the pilot work, it did not match the modal description on one variable.) This array was included to test the logic that minimizing foil similarity would enhance correct identification and to produce an array to test the potentially negative effects of minimizing similarity on false identification rates tested in Experiment 3. The six photographs were arranged in two rows of three numbered 1 to 3 across the top and 4 to 6 across the bottom. The target was in position 4.

Identification Procedure

Students were asked to queue up about 4 m back from the arrays. Identification forms were distributed and students were asked to put the identifying mark they had used on the description form at the top of the identification form. One student at a time approached each photo array, examined the pictures, recorded their responses, placed the form in a box such that it could not be seen by subsequent students, and returned to their seats without talking to other students waiting to complete the task. The identification form asked students to place an X through one of seven boxes indicating the picture they believed they recognized as the man or that his picture was not in the array. The students were warned that the man's picture may or may not be in the array. Confidence in their decision was rated on a Likert scale.

Results and Discussion

The direction of the results supported Luus and Wells' prediction but the differences were not statistically significant. As expected, the target was selected least often from the similarity-to-suspect array (66%, 19 of 29 subjects). Tests for differences in proportions indicated that this value was not significantly lower than the likelihood that the target would be selected from the match-to-description array (79%, 23 of 29 subjects, $Z = 1.30$) nor from the biased match-to-description array (81%, 25 of 31 subjects, $Z = 1.32$). The two match-to-description arrays did not differ significantly, $Z < 1$. Neither confidence in correct identification ($M = 4.93$) nor confidence in erroneous rejections of the lineup ($M = 4.58$) was significantly influenced by the photo array examined by the student, $F < 1$ in each case. Confidence–accuracy correlations are not meaningful when only target-present arrays are used and are not reported (Lindsay, 1986; Wells & Lindsay, 1985).

It appears that the issue of foil selection by match-to-description should not be dismissed. Although not significant in our data, some gain in correct identification rate may be possible when extremes of similarity-to-suspect are avoided. It is worth noting that the method used in this study only approximated the match-to-description technique proposed by Luus and Wells (1991) and used by Wells et al. (1993). Their recommended procedure would require construction of an array for each witness so that any features unique to a witness' description of the criminal would be reflected in the array. Such a procedure may increase the difference in correct identification rate between the similarity-to-suspect and match-to-description techniques.

An additional and serious limitation of this study was our inability to match original descriptions with identification data. Using our approximation to Luus and Wells' recommended procedures, witnesses providing descriptions that did not match the modal description employed to create the arrays should have been discarded as their data do not provide a true test of the Luus and Wells' foil selection strategy. Unfortunately, a substantial proportion of the students failed to place the same identifying information on their identification forms as appeared on the description forms. Most stated that they simply had forgotten. This prevented us from controlling for the mismatch between the students' original description of the target and the foils selected.

Most of the descriptions exactly matched the modal description used to create the arrays; however, some of the descriptions obtained did not match the modal description (i.e., some of the features in the modal description were not reported by 100% of the subjects). As a result, the lineups presented were not appropriate by Luus and Wells' standards for 19 of the subjects. Only three of the descriptions not fitting the modal description could be matched with identification forms, and eliminating these subjects did not alter the results (two in the match-to-description and one in the similarity-to-suspect conditions).

Although our data fail to confirm significant gains from the match-to-description strategy, the size of the difference (about 15%) combined with the fact that it was in the predicted direction and that Wells et al., (1993) have demonstrated the effect suggests that the effect may appear with a stronger manipulation of lineup structure or larger N. Our primary concern is with false identifications, not correct ones. The match-to-description strategy may improve correct identification rates. Even if it does not, match to description will be attractive to police because it permits an easily defined and defended method of selecting lineup foils. If this method of foil selection is to be adopted, it is crucial to demonstrate any potential risk to innocent suspects.

STUDY 3: EFFECTS OF FOIL SELECTION STRATEGY ON FALSE IDENTIFICATION RATE

Even if police routinely probe for a wide array of descriptive information (e.g., sex, race, age, height, weight, hair color, hair length, eye color, presence of facial hair, and any other distinguishing features), it may still be possible to create a biased lineup using the procedures described by Wells (Luus & Wells, 1991; Wells et al., 1993) by selecting foils maximally dissimilar from the suspect. The potential for biased procedures resulting from misuse of the procedure needs to be explored.

A crime was staged by the second author (the target from Experiment 2) and witnesses were asked to attempt identifications from one of the three arrays used in Experiment 2 except that a photograph of an innocent person was substituted for the picture of the confederate. In addition, half of the witnesses attempted the identification task from a simultaneous array while the remainder were shown the

same pictures sequentially. Sequential lineup presentation has been shown to dramatically reduce false identification rates (e.g., Cutler & Penrod, 1988; Lindsay et al., 1991; Lindsay & Wells, 1985). It was hoped that any inflation of false identification rate produced by the biased match-to-description strategy would be eliminated by sequential presentation of the pictures.

Procedure

Introductory psychology students at Queen's University (final $N = 202$) participated in the study in exchange for extra marks. A crime was staged by the target from Experiment 2. The crime was the theft of the experimenter's purse (typically used in the first author's research, see Lindsay et al., 1991 for a detailed description). Witnesses then completed an open-ended description of the criminal and responded to specific requests for further information regarding his appearance. Witnesses who failed to provide a description that exactly fit the modal description used to construct the arrays (see Experiment 2) and those who included additional details (and thus would have required foils with features not present in the arrays using Luus and Wells' recommended methods) were discarded. Approximately 15% of witnesses were eliminated for these reasons.

Witnesses were asked to attempt to identify the thief from one of the three photo arrays. All witnesses were informed that the criminal may or may not appear in the photographs presented. Half of the witnesses were shown six-picture arrays (simultaneous lineups). The remaining witnesses saw the same six pictures presented as a sequential lineup following the procedures described by Lindsay and Wells (1985); i.e., the witnesses were *not* aware of the number of pictures they would see, were told they could take as long as they needed to examine each picture, that they must make a yes or no decision regarding each picture before seeing the next, and that once a decision had been made they would not be permitted to return to the picture again. The suspect appeared in the fourth position in the lineups.

In previous studies, replacements for confederates in criminal-absent lineups have been selected to be highly similar to the criminal in order to test the ability of some lineup procedures to protect innocent suspects, including those who happen to closely resemble the true criminal. Following such a procedure here would bias the results by inflating false identification rates more in the match-to-description than the similarity-to-suspect arrays (in which the foils all closely resembled the confederate). In this study, the innocent replacement was only moderately similar to the criminal. Although selected from the top quartile of faces, similarity ratings indicated that he was less similar to the confederate ($M = 5.8$) than were the foils in the similarity-to-suspect lineup ($M = 6.2$).

Results and Discussion

For simultaneous lineups the rate of correct rejection did not differ significantly regardless of whether the foils were selected by similarity-to-suspect, match-to-description, or biased match-to-description (53%, 56%, and 50% respectively). Thus correct decisions were made equally often for all lineups with the

criminal absent. When the lineups were presented sequentially, correct rejections increased significantly from 53% to 86%, $Z = 2.45$, $p < .05$. Once again the rate did not differ across the lineups (87%, 88%, and 84% respectively for the similarity-to-suspect, match-to-description, and biased lineups). $Z < 1$ for each comparison.

When presented simultaneously, the biased match-to-description lineup produced a higher rate of selection of the replacement (50%) than either of the other two lineups (8% and 25%), $Z = 4.18$ and 2.16, respectively, $p < .05$. As expected with a biased lineup, witnesses in the biased match-to-description lineup identified either the innocent replacement or no one. This illustrates the danger of the match-to-description strategy. Using this approach, police may place an innocent suspect of moderate similarity to the criminal in a lineup with others who look quite different from him, thus making the suspect stand out.

Overall, selection of the innocent replacement using sequential presentation was reduced to 6% from 28% using simultaneous presentation of the pictures, $Z = 4.16$, $p < .05$. Choices in general were reduced to 14% from 47%, $Z = 2.45$, $p < .05$. Despite the overall reduction, the sequentially presented, biased lineup still produced a higher rate of replacement identifications (16%) than either the similarity-to-suspect (0%) or match-to-description (3%) procedures presented sequentially, $Z = 2.37$, $p < .05$ and 1.75, $p < .10$. The difference between the two nonbiased procedures was not significant, $Z < 1$ (see Table 2).

The claim that there is no reason for the suspect to be more similar to the criminal than other lineup members so long as all fit the witness' description is not tenable, particularly if the description is restricted to features mentioned in free recall. The risk of unmentioned default values is too high. Even if a detailed description was obtained by police, the match-to-description strategy provides a rationale for constructing a biased lineup by making the suspect stand out.

GENERAL DISCUSSION

The results of the three studies create somewhat of a dilemma. As predicted by Luus and Wells (1991) and demonstrated by Wells et al. (1993), selecting foils by match-to-description may assist eyewitnesses confronted with a photo array

Table 2. Identification Decisions (%) as a Function of Foil
Selection Strategy and Mode of Lineup Presentation

| Identification decision | Lineup presentation | | | | | |
| | Simultaneous | | | Sequential | | |
	Sus	Des	Bias	Sus	Des	Bias
ID replacement	8	25	50	0	3	16
ID foil	39	19	0	11	10	0
ID no one	53	56	50	88	87	84
N	36	36	34	34	31	31

Note: Sus, similarity-to-suspect; Des, match-to-description; Bias, biased match-to-description.

containing the criminal. Although our results were not significant, the data reflected the predicted pattern. Even without a substantial increase in correct identification rate, the match-to-description strategy provides a rationale for constructing lineups that permits an informed and reasonable evaluation of the quality of the foils and might permit police officers to construct fair lineups.

Unfortunately, the match-to-description strategy may increase the probability of a false identification even if the innocent suspect only moderately resembles the true criminal. Given the vague nature of eyewitness descriptions, biased lineups can be produced that substantially inflate false identification rates, but use foils acceptable by the match-to-description criteria. Thus, the claim that selecting lineup foils by match-to-description has no negative implications for innocent suspects is false, at least as the procedure is currently described.

The most obvious problem with Luus and Wells' (1991) method is restricting the features to be matched in the lineup foils to those mentioned by the witness in free recall. The existence of default values in descriptions in combination with the method they recommend to select foils could result in a biased lineup.

Default values are not the only potential problem for the match-to-description strategy. Consider once again our example of a description given in the introduction. Assume that only the suspect has a mole on his face, but it is on his right cheek (rather than the left as claimed by the witness). Is it biased to have a lineup in which only the suspect has a mole on his right cheek? We argue that the lineup is biased if the witness has ever mentioned any feature associated with memory of the criminal that appears on the suspect exactly *or approximately* as described but is absent for the foils. For the example given, police will be more likely to stop, question, and arrest someone as a suspect because of the presence of a facial mole. If a descriptive feature is likely to have led to arrest, then it should be matched in the lineup foils whether obtained in free recall or by any other means in any description prior to the attempted identification.

Even the use of specific probes may not completely eliminate the problem of default values in descriptions. For example, a witness to a crime in an ethnic enclave may fail to mention that the criminal was a member of the dominant group in the area. When asked about the race of the criminal, the witness may state that the person was white with light hair but not mention apparent ethnic origin such as Scandinavian (or dark hair for an Italian or Greek). Once again, using Luus and Wells' (1991) recommended procedures, the suspect may be the only lineup member who appears to be of the same ethnic group as the criminal.

Luus and Wells could argue that this problem can be overcome by assessing the bias of the lineup using measures such as effective or functional size (Malpass & Devine, 1981; Wells, Leippe, & Ostrom, 1979). These techniques provide people who have not seen the criminal (mock-witnesses) with the description of the criminal as given by the actual witness. The mock-witnesses are required to select the person from the lineup they feel is most likely to be the suspect. Bias is indicated by an inappropriately high frequency of choices of the suspect by mock-witnesses. If such measures indicate that the suspect stands out as a better fit to the description than other lineup members, then the lineup would be declared unfair.

There are two flaws with this approach: First, measurement of lineup bias will generally follow rather than precede the use of the lineup. By then it is too late to correct an error and the probative value of the lineup will have been destroyed if the procedure was biased. Of course this could be countered by measuring fairness prior to using lineups, but this seems unlikely and also would not deal with the second problem.

Second, default values in eyewitness descriptions also may present a problem for measures of lineup bias if the mock-witnesses used to assess the fairness of the lineup are drawn from a different population than the witness providing the description. The mock-witnesses and the real witness may not share the same default values. For example, undergraduates may not presume that a dark-haired criminal must be Greek, but a witness living in a Greek enclave may. Assume that the witness described the criminal as a heavy-set, male in his 20s with dark hair. Also, assume that all lineup members fit this description but that only the suspect is ethnically Greek. Under such conditions, measures of lineup bias may indicate that the lineup is fair because all foils match the description and the mock-witnesses have no reason to assume the criminal was Greek. The suspect still may stand out to the witness as the only plausible lineup member.

Wells (1993) recommended using foils selected by match-to-description in combination with sequential presentation. Sequential presentation of the pictures reduces the problem of false identification and certainly should be used regardless of how the foils are selected. However, in our Experiment 3 sequential presentation eliminated the difference in false identification rates between the match-to-description and similarity-to-suspect strategies only if foils were not selected to be maximally dissimilar from the suspect. Given Luus and Wells' (1991) method of constructing lineups by selecting foils maximally dissimilar from all previously selected lineup members or Wells et al.'s (1993) procedure of selecting all foils as maximally dissimilar to the suspect, police may readily produce biased lineups using the match-to-description strategy. This could occur in either of two ways. Police may attend more to the suspect than other lineup members when selecting foils. (It would be surprising if they did not!) They may maximize the difference between the foils and the suspect to a greater extent than the differences among foils. Alternatively, police may intentionally bias the lineup, then defend their actions as consistent with Luus and Wells' recommendations. Certainly intentional bias is not out of the question and must be a concern (Lindsay, 1993).

The match-to-description strategy for selecting lineup members should not be discarded. Gains in correct identifications of criminals would probably result from this strategy and are a worthwhile goal. Even without such gains, police would benefit from an explicit and easily used strategy for appropriate selection of foils. However, the resulting lineup must not be biased. Sequential presentation of the lineup will help to minimize false identifications if poor foils are selected. More research is needed to determine the degree of detail required of eyewitness descriptions to avoid default values in descriptions leading to undue risk of false identification when lineup foils are selected by match-to-description.

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