

Lineup Size and Bias

A lineup is constructed by placing a person suspected of committing a crime (the suspect) among a collection of innocent people (fillers). An eyewitness is asked to identify the offender from this collection, with a suitable admonition that the offender may not be present. A properly conducted lineup can provide evidence that the suspect is (or is not) the offender, or that the eyewitness does not have a reliable memory of the offenders' identity. For this to be the case the lineup must not be *biased* and it must be of sufficient *effective size*. A lineup is biased when a witness with a poor (or absent) memory is able to guess the identity of the suspect at a rate greater than chance expectation (1/lineup size). A lineup has a certain number of members including the suspect, and this is called the nominal size. A lineup is unfair to the extent that it contains fillers who are not plausible choice alternatives to the suspect for a witness choosing randomly or a witness with a poor (or absent) memory. The suspect plus the number of persons who are alternative choice alternatives is called the lineups *effective size*.

Two basic rules govern the construction of eyewitness identification lineups. First, the suspect in the lineup should not 'stand out' (be inappropriately distinct) from the other lineup members. Second, fillers should resemble the suspect in important attributes and should be appropriate choice alternatives (that is, witnesses who have a poor memory of the offender should not be able to reject them).

Lineup Fairness Evaluation.

In order to determine whether the two basic rules have been adhered to, lineup evaluation research participants who have not seen the offender are asked to guess which lineup member is the suspect on the basis of a brief physical description (e.g. the description originally given by the witness to the police) or with no information at all about the appearance of the offender.

Lineup Bias.

Bias is bidirectional - it can make the suspect more likely, or less likely, to be chosen by a witness who has no or very little specific memory of the offender. It is defined as a statistically reliable tendency for a suspect to be chosen from a lineup at a rate different

from that expected if the choice were made by chance alone (i.e. a random pick of a lineup member). The proportion of lineup evaluation research participants able to pick the suspect from the lineup is a measure of lineup bias.

Lineup Size.

Nominal size is the number of persons presented in a lineup. Effective size is the number of persons in the lineup who are effective choice alternatives for a witness who has little information or memory about the actual offender, or for a witness viewing a lineup in which the suspect is actually innocent (i.e. is not the offender). It is thought of as a reduction of the nominal size to a value that better represents the 'true' number of plausible foils (i.e. nominal size \geq effective size). The index E, is a measure of the effective size of a lineup.

Role of lineups in the Criminal Justice System.

One purpose of having fillers in a lineup is to provide alternative choices for witnesses who feel they must choose someone from the lineup but who may have little memory for the offenders' actual appearance. When the witness feels compelled to make a choice, the presence of the fillers provides a safeguard against false identification by reducing the chance of false identification of an innocent suspect from 100% to 20% (for live lineups, which often have 5 members) or 16.67% (photospreads, which often have 6 members).

Another purpose of having fillers in a lineup is to test the witness' memory for the perpetrator, although it must be said that the interpretation of this test is confounded. To see this, consider that a witness can make several choices when faced with a lineup. The witness can identify the suspect, identify an innocent foil, say that the offender is not in the lineup, or say that he/she does not know whether the offender is in the lineup. If the witness identifies the suspect, we are likely to strengthen our belief that the suspect is the offender. If the witness identifies an innocent foil, we are likely to either strengthen our belief that the witness has a poor memory of weaken our belief that the suspect is the offender. If the witness rejects the lineup we may weaken our belief that the suspect is the offender, but if the witness does this with little confidence we will not know whether to

weaken our belief that the suspect is the offender or our belief in the witness' memory. In all of these cases the inference(s) made are conditional on the fairness (size and bias) of the lineup. For example, a witness with no memory of the offender could choose the suspect from a biased, or low effective size lineup with comparative ease.

Good and bad lineups.

In order to fulfil their purpose, eyewitness identification lineups must not contain cues to the identity of the police suspect. For example, in one criminal case a (white) witness described the (black) offender as possessing, among other attributes, "long hair in some kind of braids, a single row braids that were coming loose". The lineup contained one person whose thin braids were visible, coming loose, behind his head. This person was the police suspect. It is not surprising that the witness identified him, as did 95% of lineup evaluation research participants. Since it remains ambiguous whether the basis for the identification was a genuine memory for the suspect from the criminal event or the fact that his photograph in the lineup contained a feature found in the witness's previous verbal description it is not possible to reach a clear conclusion about whether or not the suspect is the offender.

There are two difficulties with this lineup. First, the suspect photograph stood out from the remaining photographs of the lineup because it was the only photograph that displayed thin braids, coming loose, so that the lineup was biased against the suspect. Second, the fillers were chosen without regard to this highly distinctive feature. For this reason the lineup had an effective size of only one, because without "braids, coming loose", none of the fillers in the line-up were a useful alternative choice option for the suspect. The fillers might as well not have been present at all.

In another criminal case a witness gave a description that included the phrase "small, squinted eyes". The photograph of the suspect used in the lineup showed him blinking. When the lineup was evaluated it was found that the suspect stood out dramatically in the lineup and that three of the fillers were hardly choice alternatives at all. The police had two alternative photographs of the suspect in which he had not blinked while being photographed. When one of these was

substituted, the lineup was not biased against him. In addition, two other lineup members were more likely to be identified by mock witnesses. The choice of photograph of the suspect, as well as choice of filler photographs are important when constructing a lineup.

Constructing good lineups

The general qualities of a good lineup are noted above: The suspect should not stand out, and the fillers should be effective choice alternatives to the suspect. Achieving this ideal requires careful attention to details.

1. If the witness(s) has provided a description of the offender that has a reasonable amount of detail, a lineup can be formed using this description, provided that the description matches that of the suspect.

2. If the witness' description of the offender is either impoverished or does not fit the suspect, then the lineup must be constructed to match the suspect's appearance.

Normally the investigator would begin with the photo of the suspect that will appear in the lineup, and using whatever photograph archive is available, find filler photographs that are sufficiently similar to the suspect for them to serve as effective choice alternatives. There are, however, some cautions to be observed.

First, if the suspect and investigator are of different racial groups an investigator of the same racial group as the suspect should be asked to construct the lineup.

Second, the procedure of attempting to find five fillers who resemble the suspect can lead to a lineup in which the suspect stands out because he is the one person in the line-up who shares the most with each of the lineup members: He becomes the prototype of the lineup, and is more likely to be chosen by witnesses with little memory for the offender, witnesses who make a choice even when the offender is absent from the lineup. Alternate lineup construction procedures decenter the filler selection process in a number of ways. One procedure is to choose filler #1 to be an effective alternative to the suspect, and then to choose the others so that they are similar to both the suspect and filler #1. Another procedure is to choose filler #1 based on similarity to the suspect, filler #2 based on similarity to #1, and so on until all five fillers have been chosen. Irrespective of the filler selection process, however, the same overall principles must be observed: The suspect

should not stand out, and the fillers should be effective choice alternatives.

Evaluating lineups.

In order to evaluate whether a lineup is fair, we estimate its size and its bias. This is done with a lineup evaluation task (see above). Calculations over the ensemble of lineup evaluation participant decisions determine bias (the proportion of participants choosing the suspect), and effective size (the extent to which participant choices are not equally distributed across lineup members). It is advisable to apply inferential statistics to each of these indices, especially when the number of participants is relatively small. One may test whether lineup bias is greater or less than that expected by chance (1/nominal size), and/or construct 95% confidence intervals around both bias and size indices. Spreadsheets aiding these calculations are at <http://eyewitness.utep.edu/documents/bias-calc.xls> and

<http://eyewitness.utep.edu/documents/TredouxE.xls>

All suspect and Multiple suspect lineups.

Police sometimes construct lineups in which all members are suspects. This practice has several problems. In a single suspect lineup, the choice of someone other than the suspect is diagnostic of a witness' unreliability because all other lineup members are known to be innocent. But in an all suspect lineup it is not possible for the witness to identify a person known to be innocent because the investigator views all lineup members as potentially guilty. As a result the safeguard against false identification is diminished. Thus the identification of any lineup member at all becomes the suspect after the fact. For this reason there is no way to evaluate the witness's memory about the identified person, and there is no way to detect a witness who chooses completely at random, or on the basis of a poor or faulty memory. Lineups composed of multiple but not all suspects degrade the safeguard somewhat less.

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Cross-References

Expert Psychological Testimony on Eyewitness Identification; Filler Selection; Identification Tests, Best Practices in

Further Readings

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