Lineup Construction

The overview that follows is offered to help the trier of fact understand how a lineup or photo array is — or should be — put together, and how its fairness can be measured. A lineup is, in effect, a test of the witness's memory, and like any test it can be well or badly constructed. A poorly composed lineup can manufacture an identification that reflects the structure of the array rather than the witness's memory of the offender. Its purpose is to define the terms a court is likely to encounter, to summarize the research on building and evaluating fair lineups, and to do so in plain language and without favoring any party. This paper concerns how a lineup is composed; the separate questions of how it is administered and presented are treated in the companion papers on identification procedures.

What Lineup Construction Is

An identification lineup, whether a live lineup or a photographic array, contains one suspect together with a number of fillers — people the police know to be innocent. The purpose of the fillers is to make the procedure a genuine test: if the witness picks the suspect out from among plausible alternatives, that choice carries information about the witness's memory. If the suspect stands out so that anyone would pick him, the choice carries little such information. Constructing a lineup well therefore means assembling it so that the suspect does not stand out and the fillers are real alternatives — a problem of composition that is separate from, and prior to, the questions of how the lineup is instructed and administered.

Two Dimensions of Fairness: Size and Bias

Researchers analyze lineup fairness along two dimensions. The first is size — but the number of people in the lineup (its nominal size) is less important than its functional size, the number of members who are genuine, plausible alternatives to the suspect given the witness's description (Wells, Leippe, & Ostrom, 1979). A six-person array in which five fillers can be ruled out at a glance has a functional size closer to one. Refinements such as effective size extend this idea and allow it to be quantified and tested statistically (Tredoux, 1998). The second dimension is bias: the degree to which the suspect is likely to be chosen above the rate expected by chance, independent of any witness's memory. A fair lineup is one with adequate functional size and no bias toward the suspect.

Measuring Fairness: The Mock-Witness Method

Fairness is not something to be assumed; it can and should be measured. The standard method, pioneered decades ago, is the mock-witness procedure (Doob & Kirshenbaum, 1973). People who never saw the crime — mock witnesses — are given only the witness's original description of the offender and asked to pick the person that description best fits. If the lineup is fair, their choices should scatter across the members at roughly the rate expected by chance (one divided by the number of members); if mock witnesses pick the suspect far more often than chance, the lineup is biased, because the suspect can be singled out from the description alone, without any memory of the crime. The logic is decisive: when a lineup is biased, an actual witness's selection of the suspect may reflect the same description-based guess a mock witness would make, rather than genuine recognition. Fairness should be evaluated and documented in three settings — by law enforcement before a lineup is used, by researchers reporting their materials, and by defense counsel examining an identification after the fact — and statistical methods exist for drawing sound inferences from mock-witness data (Tredoux, 1998).

Choosing Fillers: Match the Description, Not the Suspect

A central and somewhat counterintuitive principle governs the selection of fillers. Fillers should be chosen to match the witness's verbal description of the culprit, not to resemble the police suspect as closely as possible (Wells, Rydell, & Seelau, 1993; Luus & Wells, 1991). Matching fillers to the suspect rather than to the description seems protective but is not: if the suspect is innocent, surrounding him with people who look just like him makes the array nearly impossible and offers the innocent suspect no real safeguard, while needlessly raising the risk of a mistaken pick. Matching to the description instead ensures that everyone in the lineup fits what the witness actually reported, so the suspect does not stand out, while preserving enough natural variation — sometimes called propitious heterogeneity — for genuine recognition to operate. Where the witness's description is sparse, or where the suspect has a distinctive feature such as a scar or tattoo, special care is required: a unique feature should be replicated across fillers or concealed on the suspect so that it does not by itself point to him.

Best-Practice Composition Rules

These principles are reflected in the widely endorsed guidance on composing lineups (Technical Working Group for Eyewitness Evidence, 1999; Wells et al., 1998; National Research Council, 2014). The core rules are straightforward: include only one suspect in any identification procedure; use an adequate number of fillers — at least five — each of whom fits the witness's description of the perpetrator; ensure the suspect does not unduly stand out in clothing, photograph quality, or any distinctive feature; conceal any indication of a prior arrest or booking; position the suspect randomly and vary the position across witnesses and cases; avoid reusing the same fillers when showing a new suspect to the same witness; view the completed array to confirm the suspect does not stand out; and preserve the array and its order exactly as shown. Each rule serves the single aim of making the lineup a fair test rather than a pointer to the suspect.

Construction Interacts with Administration

A fairly composed lineup is necessary but not sufficient. Even a well-built array can yield an unreliable identification if it is administered suggestively, and recent research continues to refine how lineup outcomes should be analyzed and how upstream decisions affect them — for example, work applying signal-detection methods to lineup performance (Lee & Penrod, 2019) and studies showing that officers do not always calibrate to the strength of the evidence when deciding whether to place a suspect in a lineup at all (Katzman & Kovera, 2022). Composition therefore operates together with the administration safeguards — unbiased instructions, double-blind administration, and contemporaneous confidence statements — addressed in the companion papers; a fair lineup requires attention to both.

Lineup Construction and the Law

Lineup composition has long been a focus of constitutional identification law. Due process forbids identifications produced by unnecessarily suggestive procedures, and an unfairly composed lineup — one in which the suspect stands out — is a classic form of such suggestion; the Supreme Court found a lineup impermissibly suggestive on these grounds in Foster v. California (1969), and the broader reliability framework of Neil v. Biggers (1972) and Manson v. Brathwaite (1977) governs when a suggestive identification may nonetheless be admitted. A defendant also has a right to counsel at a post-charge corporeal lineup (United States v. Wade, 1967). Where a lineup's composition is shown to be structurally unfair, that showing may support a motion to suppress the resulting identification, and courts increasingly recognize the science of identification in evaluating such claims (Perry v. New Hampshire, 2012; State v. Henderson, 2011).

Whether an expert may explain lineup-fairness concepts — functional and effective size, bias, mock-witness evaluation, and filler selection — and may present a fairness analysis of the particular lineup is governed by the rules on scientific and expert evidence: Daubert v. Merrell Dow Pharmaceuticals (1993), Kumho Tire Co. v. Carmichael (1999), and Federal Rule of Evidence 702 in federal court and the states that follow them, and the general-acceptance test of Frye v. United States (1923) elsewhere. The constructive contribution of the science is that fairness can be measured rather than merely asserted: such testimony informs the trier of fact whether a lineup was a fair test of memory — not whether the resulting identification is in fact correct, a judgment the law reserves to the fact-finder.

Special Issues in Legal Practice

The principles described above apply with equal force to every party in a legal proceeding. Memory operates the same way regardless of who is asking the questions, and the science summarized here favors no side. What differs between the parties is not the science but the vantage point — the particular places where memory issues tend to surface, and the particular errors each party is best positioned to guard against. The two summaries below identify those recurring issues. They are offered for orientation, not as litigation strategy; in every case the controlling question is what the evidence in that case will, and will not, support, and the expert's role is to inform the trier of fact rather than to advocate for either side.

Special Issues for Prosecutors

For the State, a properly constructed lineup is among the strongest forms of identification evidence, and its fairness is most persuasive when it has been measured and documented rather than assumed. A lineup with a single suspect, an adequate number of fillers who match the witness's description, no feature that makes the suspect stand out, and a recorded, fair composition gives the State affirmative grounds to argue that a resulting identification reflects memory rather than structure. The errors the prosecution is best positioned to guard against are compositional: a suspect who stands out by clothing, image quality, or a distinctive feature; fillers who do not fit the description or who can be ruled out at a glance, shrinking the functional size; visible booking information; and reusing fillers across procedures. Documenting the array, and where feasible confirming its fairness through mock-witness evaluation, both strengthens the evidence and forecloses later challenge.

Special Issues for Defense

For the defense, the recurring task is to examine whether the lineup was a fair test of memory or a pointer to the suspect — recognizing that an identification from a biased array may reflect the array's structure rather than the witness's recognition. The analysis tracks the construction principles: whether the suspect stood out in appearance, clothing, or image quality; whether the fillers genuinely fit the witness's description or could be eliminated at a glance, reducing the functional size; how a distinctive feature was handled; and whether booking indicia, filler reuse, or fixed positioning skewed the procedure. Mock-witness evaluation offers an objective way to test whether the suspect can be picked from the description alone, and a demonstrated structural bias may support a motion to suppress and, in any event, bears on the weight of the identification. The law contemplates that these matters be placed before the trier of fact through suppression motions, cross-examination, and, where the governing standard is met, expert testimony on lineup fairness (Daubert v. Merrell Dow Pharmaceuticals, 1993; Frye v. United States, 1923). The aim is not to suggest that lineups are inherently unreliable — a fair one is a valuable test — but to ensure that the fairness of the particular lineup is measured and weighed.

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