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Possible criminalistic advantages of sequential lineup¹

Introduction

A police lineup is an important and common investigative act which, if carried out lawfully and professionally, can be used to identify the relevant persons (in particular the perpetrators) and objects involved in a crime. Its importance is increased where, in the absence of trace evidence, identification by expert examination is not feasible or, in the case of objects, would be unnecessary because it would result in wasted time and additional costs. Sequential lineups are currently not allowed under Hungarian law. In this paper I will introduce the results of several researches on the effectiveness of sequential lineups conducted abroad and outline how the legal prohibition manifests itself in Hungarian law norms. Furthermore, I will draw attention to the possible practical advantages of sequential lineups and to their inevitability in certain cases.

The sequential superiority effect

Simultaneous lineup means that the persons/objects (or images) are present at the same time, the witness can observe them simultaneously, that is, all of them are in the witness's field of vision when the lineup starts, and all of them stay there until it ends. In the case of sequential lineup, the persons/objects (their images) are presented in succession at short intervals, so that it is perceived individually by the person attempting to carry out the recognition.

¹ This study is the English version of the presentation delivered at the conference 'The Science and Practice of Law Enforcement' held in Pécs 27.06.2024.

The data published in the literature by researchers were controversial in the past decades, but the dominant view has been for a long time that the sequential lineup is more effective than the simultaneous version; although it reduces the willingness to choose relatively, so it decreases the number of successful identifications, it also significantly increases the chance to avoid the identification of non-guilty persons, that is, it substantially reduces the false positive results of the lineup.² This phenomenon is called “*sequential superiority effect*” in the literature.

The quoted effect was demonstrated in a number of experiments, and its existence was also confirmed by two meta-analyses, which were carried out 10 years apart in 2001³ and 2011.⁴ Based on this evidence, researchers have successfully advocated a policy shift towards sequential presentation, which has led to its adoption in various forms in 30% of US jurisdictions and in Canada and the United Kingdom.⁵ The interpretation of the sequential superiority effect was challenged by Wixted and Mickes in 2014. The researchers argued, based on their own theory called „*diagnostic feature-detection hypothesis*” (DFDH), that in the case of simultaneous lineup the “discriminability” of the witness is higher than in the case of sequential lineup, that is, they can identify the person seen earlier more effectively.⁶

² Consequently, the sequential lineup could be more suitable to avoid miscarriage of justice than the simultaneous lineup, which is a very important aspect. While writing this paper, I have looked through two American databases specialized in wrongful decisions within the criminal justice system. In one of them 21 % of all cases (<https://deathpenaltyinfo.org/policy-issues/innocence-database>), while in the other 67 % of all cases (<https://innocenceproject.org/all-cases/#>) were related to eyewitness misidentification.

³ Steblay, N. – Dysart, J. – Fulero, S. et al. (2001): Eyewitness Accuracy Rates in Sequential and Simultaneous Lineup Presentations: A Meta-Analytic Comparison. *Law and Human Behavior*, 25(5), 459-473

⁴ Steblay, N. – Dysart, J. – Wells, G. L. (2011): Seventy-two tests of the sequential lineup superiority effect: A meta-analysis and policy discussion. *Psychology, Public Policy, and Law*, 17(1), 99-139

⁵ Kaesler, M. – Dunn, J.C., Ransom, K. et al. (2020): Do sequential lineups impair underlying discriminability? *Cognitive Research* 5, 35, 2

⁶ Wixted, J. T. – Mickes, L. (2014): A signal-detection-based diagnostic-feature-detection model of eyewitness identification. *Psychological Review*, Vol. 121, No. 2, 262-276

The essence of DFDH is that it predicts a memory advantage for simultaneous lineups compared to sequential lineups, because the witness's memory excludes the common features (e.g. hair colour, skin colour) in the persons lined up before them, and the witness can focus on the different features (e.g. face shape). Wixted concludes in the chapter of the book "Visual Memory" written by him in 2022 that the simultaneous lineup has superiority, because many experiments have demonstrated this since 2011.⁷ This conclusion is contradicted by the previously quoted study by Kaesler and his co-authors, published in 2020, which tested the DFDH based on a reanalysis of a 2012 database,⁸ data from eight current researches and a new experiment conducted by the authors with the participation of 589 people, and found no evidence for the superiority of the simultaneous lineup.⁹

Legal prohibition on sequential lineup in Hungary

Act XC of 2017 on Criminal Procedure (Criminal Procedure Code, CPC) and the Government Decree 100/2018 (8 June) on the Detailed Rules of Investigation and Preliminary Procedure (Joint Investigation Decree, JID) allows to perform a lineup only where the witness¹⁰ observes the persons/objects (or images) simultaneously. In the case of the CPC, this conclusion is drawn from the following section:

⁷ Wixted, John T. (2022): *The Basic Science of Eyewitness Identification*. In: Timothy F. Brady – Wilma A. Bainbridge (Eds.): *Visual Memory*. Routledge. New York., 322

⁸ Palmer, M. A., – Brewer, N. (2012): Sequential lineup presentation promotes less biased criterion setting but does not improve discriminability. *Law and Human Behavior*, 36(3), 247-255

⁹ Kaesler et al.: *Ibid.* 19

¹⁰ Under Hungarian law, carrying out a lineup is allowed with two types of observers: with a witness or with a defendant. For the sake of a more comprehensible formulation of the study I only write about lineups where the observer is a witness. It is worth noting that both the CPC and the JID contain a prejudice that is not even obvious at first sight in relation to the protagonist of the lineup. Both law norms use the expression "person making the recognition" when referring to the witness. The legislator therefore seems to assume – and unfortunately also suggests the same to the addressees of the norm – that there will certainly be recognition, that the witness will definitely choose someone from the

Section 210 (3) When presenting persons for identification, the person in question shall be presented in a group of other persons who are not related to the case, unknown to the person making recognition, and similar to the person concerned in terms of the prominent distinctive marks specified by the identifying person, in particular in terms of same sex, similar age, body shape, skin color, neatness, and clothing. When presenting objects for identification, an object concerned shall be presented among similar objects. The placement of a person or object concerned shall not be considerably different from that of other persons or objects in the same group, and shall not be prominent in any way.

The wording of the cited section of the CPC leaves no doubt that the witness shall observe a group of persons or objects during the lineup (see the expressions “*in a group of other persons*”, “*presented among similar objects*”, “*persons or objects in the same group*”). The third sentence in the quoted section contains a very reasonable rule regarding the placement of a person or object within the group.¹¹

Consequently, the sequential lineup is not allowed under Hungarian law. However, the identification based on memories created through smell, taste, touch, and hearing is self-evidently impossible, when the witness has

persons or objects (their images) presented before them. A detailed explanation as to why the use of this expression is not right is probably not necessary, I shall just emphasize here, that this error in the Hungarian regulation needs to be corrected in the future.

Professor Csaba Fenyvesi drew attention to the prejudice in the name of the investigative act itself, he recommends the name “attempted recognition” instead of “presentation for recognition”. He gave the title of his monograph on lineup in this spirit as well. Fenyvesi, Cs. (2023): *Felismerési kísérlet a bűnügyekben*. [Attempted Recognition in Criminal Cases] Ludovika Egyetemi Kiadó. Budapest

¹¹ There is a mistake in the wording of the section, where the CPC prohibits the “prominent placement” within the group. It is obvious, that every placement, which is “considerably different from that of other persons or objects” is “prominent” at the same time, and there is no such thing as “prominent placement within the group” without a considerably different position.

to sense the several items simultaneously. Let us just think about the cacophony coming from multiple voice recordings played at the same time (or from multiple persons speaking simultaneously behind a screen). In this case the identification itself is out of the question, let alone the marking of the eventually chosen voice. The voice recordings are played one by one in such cases, of course. The situation is the same with video recordings, the witness watches the recordings one by one (in this case, the simultaneous lineup is not possible even with a witness with visual memories). Beyond that, a lineup, where the situation or the scene is relevant can only be performed sequentially.¹² These cases should be part of the legal regulation, the current Hungarian law needs corrections in that regard.

Returning to the topic of visual memories and the regulation on that matter, the JID contains the following rule on the lineup with pictures:

Section 74 (2) If the lineup is done with images, the photographs of the persons or objects shall be numbered with sequential numbers. The pictures shall be fixed permanently in the photo album sheet, which will serve as annex of the report from the lineup.

All the pictures have to be shown to the witness at the same time, that is, the witness shall observe the photo album sheet with the picture of the person/object in question and the pictures of the indifferent persons/objects on it, this means the prohibition of the sequential lineup as well.

¹² A good example for that is one of the most brutal crimes committed in the history of Hungary, the bank robbery in Mór, where 8 people were killed in 2002. One of the perpetrators was standing in front of the door of Erste Bank, and five witnesses spoke with him briefly. To do a lineup with the aim of identifying him (if there had been such an investigative act during the investigation) would have been only reasonable using sequential lineup.

Moment of recognition and “double pressure” on the lineup

Recalling memories is an instinctive process, it cannot be consciously controlled when the goal is to recognize somebody or something. The witness keeps their memories – in the case of visual perception, their memory images¹³ – in their memory, and in the case of repeated perception their brain compares what they saw with their previous memories. When the witness sees the previously perceived item¹⁴ again during the lineup, his memory gets activated and indicates the sameness. This is the moment of recognition, the main purpose and the essence of performing the lineup. The witness must, of course, express the recognition that has taken place in their mind, point to the selected person or object and/or verbally state their/its number. (In this paper I will not address those cases where the recognition does take place in the witness’s mind, but they do not make a statement – out of fear or for some other reason – or consciously choose a different item than the recognized person/object).

The lineup must be carried out in such a way that the moment of recognition occurs with the greatest possible probability, but only in the event that the person or object in question presented among the indifferent¹⁵ items is really identical with the person or object whom or which the witness actually perceived during the commission of the crime or during an event related to it. Certainty must therefore be sought from two aspects: there should be recognition if it is adequate to reality, but not if the witness did not perceive the person or object in question before. From a criminalistic point of view, the implementation of a lineup is ideal if it serves both

¹³ In the following, for the sake of simplicity, I will only write about visual memories. In practice they are the basis of lineups in the vast majority of cases anyway.

¹⁴ In this paper, I only use the word "items" to refer to persons and objects together for the sake of a more comprehensible formulation, as a dedicated opponent of the objectification of human beings, I need to note this.

¹⁵ Just like the indifferent gases in chemistry, which do not react with their environment, the function of indifferent items is also not to trigger recognition, "not to react" with the witness's memories.

requirements, if it can satisfy this „double pressure”.¹⁶ As we have seen, the literature is not uniform as to whether the simultaneous or the sequential lineup satisfies better the double pressure in question, however, based on the available data, the sequential lineup seems to be more suitable to avoid false recognition – and thus the possible miscarriage of justice. In addition to this important aspect, there are several practical considerations in favour of sequential implementation, which I will explain below.

Advantages of sequential lineup from a practical point of view

In the case of simultaneous perception of a group of persons or objects, the witness naturally receives several visual impulses at the same time, and, if the lineup is performed correctly, their intensity is equal. That is why the law prohibits significantly different positions within the group, as well as requires the presence of persons with the same main characteristics as the person in question (especially of the same sex, similar age, body shape, skin colour, neatness and clothing). In the case of objects, the legal prohibition of significantly different positions within the group also applies, as well as the requirement for the objects in the lineup to be similar. The processing of multiple impulses necessarily places a greater burden on the witness than if they had to evaluate what he saw one by one, moreover, in the case of simultaneous execution, he involuntarily begins to compare the presented persons or objects to each other, which also means an extra task for his mind and memory. The problem of “be spoilt for choice” may also occur, since in the case of persons or objects that are very similar to each other, the witness may become uncertain because of this (even the supporters of DFDH admit the fact that this can be a problem).

Neither problem exists when we use sequential lineup. Similar persons or objects (their pictures) are presented to the witness one by one, at short

¹⁶ I borrowed the term “double pressure” from Professor Flórián Tremmel, who used it in relation to the entire criminal procedure, referring to the combined requirement of speed and efficiency. Tremmel, F. (2001): Magyar büntetőeljárás. [Hungarian Criminal Procedure] Dialóg-Campus Kiadó. Budapest-Pécs, 40

intervals, with a difference that can be measured in seconds or minutes at most. After each sighting, the witness must always state whether they recognize the presented person or object. In case of a negative answer, another person or object is presented, until recognition occurs or until all objects are presented. Consequently, different methods of sequential lineup are known in foreign practice. In the version I mentioned first, the lineup ends when the recognition takes place, while in the case of the second implementation method, all persons and objects (their pictures) are presented, regardless of the success of the recognition. There is also a type of sequential lineup abroad, where the witness does not have to make a statement, only after seeing all the items one by one. There is also a method of implementation where the authorities allow the witness to see the persons or objects (their images) again, or even make it mandatory for the witness to do so.¹⁷

In connection with the sequential lineup which ends in the case of successful recognition, the problem can be raised that the object or person in question cannot be placed in the first or second place, because when it/them is recognized, no indifferent items are presented at all, or only one is presented. A legal solution to this problem is easily feasible; the presentation of at least three, but no more than six (the law should also limit the number of presented items from above) persons or objects must be a mandatory legal requirement, with the additional rule that in the event of successful recognition, the investigative act must be continued, if the number of the presented items has not reached the legal minimum yet. This would provide the investigative authorities with sufficient room for criminalistic tactics, and at the same time it would also maintain the current level of legal guarantees.

Another practical advantage of sequential lineup would be that the witness could decide the duration of the perception by their own. If the witness immediately excludes the seen item (this act in itself contains important

¹⁷ Kaesler et al., *Ibid.* 2.

information), the lineup could be continued right away with the presentation of the next item, but if the witness wanted to study the current item (and only that one) for a longer period of time, they would also have the opportunity to do so.

In the case of the outlined method, the problem of “*considerably different placement within the group*”¹⁸ would disappear, since there would be no group. Furthermore, this method of execution would presumably also significantly reduce the chance of choosing at random (provided that the witness has to make a statement after each item), since they do not know in advance how many items will be presented to them, they would only know before the lineup that there will be multiple ones. This is exactly the decreased willingness to choose that was demonstrated by the foreign experiments in relation to sequential lineup as part of the “*sequential superiority effect*” mentioned in chapter 2 of this paper.

Conclusions

The superiority of sequential lineup over simultaneous lineup is currently disputed in the literature, however, it seems very likely that the former is more suitable for reducing the number of false recognitions. From the aspect of the rule of law, the avoidance of a possible miscarriage of justice is a key issue, which carries a lot of weight on the side of sequential lineup, but due to practical considerations (for example, the problem area of “*considerably different placement within the group*”) it would be more favourable if the lawmaker lifted the prohibition existing in the current law and would at least alternatively allow sequential lineup instead of simultaneous lineup. As we could see, in the case of audio/video recordings, furthermore,

¹⁸ Self-evidently, the following rule of JID should not and could not be applied when implementing a sequential lineup: “*Section 74 (1) The person to be presented must be warned before the start of the lineup that they shall take the place of their choice among the other people to be presented. This warning and the chosen position shall be in the report of the lineup.*” However, it is worth considering to enact a legal rule, which enables the person in question to choose their own number in the process of the sequential lineup.

when the memories of the witness were created through smell, taste, touch, and hearing, as well as in the case of a lineup, where the situation or the scene is relevant, the investigative act only makes sense if it is carried out sequentially, and this should also be expressed in the legal regulation. In these cases, for the sake of dogmatic clarity – since in practice, according to common sense, no one would do the lineup simultaneously – a rule directly opposite to the current one, namely the prohibition of simultaneous lineup, would be necessary. If the *de lege ferenda* proposal outlined in the paper were to be enacted, then a regulation allowing deviations would be in force, and in the case of a witness with visual memories, the investigative authority could decide – considering the particularities of the given case – whether to carry out the lineup sequentially or simultaneously.