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Expert study : analysis and synthesis of features derived from the expert experiment

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EXPERT STUDY. ANALYSIS AND SYNTHESIS OF FEATURES DERIVED FROM THE EXPERT EXPERIMENT

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Analysis and synthesis of signs that obtained from the expert experiment allows to fully carry out a comparative study.

The main objective of this stage is to compare, match or determine the differences identified in the separate study of complex attributes of the objects, and if the differences - establishing their causes, they are essential or accidental [1; p.12- 54].

Analytical and Comparative Study interdependent. The procedure is based on the comparison of the properties established during separate research projects. In turn, the task object itself separate research direction entirely determined by the appointment of the steps of: preparing a comparative study. Dedicated and tested for analytical stage properties and characteristics of objects are compared with the corresponding properties and characteristics of the experimental sample audited (with identification studies), standard samples counterparts, with indicators of scientific, technical and other classifications, standards and technical parameters standards, the default state objects typical situations (in diagnostic studies).

Comparative study during the identification and diagnostic tests is specific.

First, during the identification always compares two physical objects: evidence from samples or other physical evidence like. Second, the object can be identified only by a comparative study of the complex identification signs: general and specific.

At this stage of precedence is the method of comparison. Among the technical tools used special optical devices: a comparative microscope, comparators, binocular stereoscopic biological microscopes and other instruments to facilitate and direct visual comparison of the compared objects. When comparing objects based on the results of quantitative determination of the composition and structure of the material used methods of mathematical statistics measurement results [2; p.154].

Comparative study of the identification phase consists usually of two stages.

In the first stage examines and compares common (generic) feature. Compare it possible to solve the issue of differences of objects or their belonging to the same genus, species and groups. This stage may result in withdrawal of the lack of identity, if there are

significant differences of common characteristics comparable objects. In this case, the difference in establishing general properties no need to further detail the properties of the objects being compared. Thus, establishing differences in the type of paint over paint particles, such as papillary pattern when comparing traces of hands, the number of rifling in the barrel firearms when comparing bullets print size stamp when comparing the details so enough for a negative conclusion about the identity [1; p.12 -54].

If the expert establishes the convergence of common characteristics, then proceed to the second stage - the study of individual characteristics. For example, the first stage compared signs of general relief structure reflecting the structure of the outer barrel, and the second - some of its micro sites. In the same sequence is to study if the difference set general attributes of the objects, but it is recognized as an expert irrelevant to the task. For example, the overall shape of the sole of shoe is different from the validated form the desired shoe in the track - reflection, but the differences caused by wear shoes that took place after the formation of the track.

At this stage, there are two methods of comparison: direct and indirect comparisons. There are two types of direct comparison, and zero -difference. Using a null comparison, the expert seeks to achieve full convergence of sizes, shapes, and relative position mapping parts of the compared traces or models: the road with ancillary merge into one line, details of relief when applied fully overlap. For example, a full match mikrotras that reflect inequalities guns hacking and crowbar being checked. To achieve zero effect produced experimental traces in an environment as close as possible to the conditions of formation of traces [3].

When comparing difference allowed some differences, which should give special expert evidence-based explanation of the nature of their origin. For example, some differences in the performance of signature of the person who inspected the disputed signatures and caused the deterioration of a person.

If identification by direct comparison using a number of methods comparison picture: simple matching, combining and superimposing images printed directly from the grating, geometric shapes and more. This method compares the seal, traces, displaying captions and so on. Photographic images should be performed strictly in one scale, and photography performed under the same conditions (light, negative material and so on). Strict compliance with all regulations required mikrofotozyomka (same angle coverage, the right choice multiplicity increase, setting objects in the same plane and in the same position). Failure to comply with these requirements results in a different scale, the lack of sharpness of images in photographs, the loss of some features and they can not be complete comparison [1; p.12- 54].

Indirect comparison is to compare the data on the characteristics obtained during two separate research track, track and sample. In this way, compared data on the properties of objects obtained using instrumental methods. Results of the study of organic and inorganic material composition of metals, paints, lubricants, fibers, soil and other objects are represented as qualitative and quantitative indicators, charts, spectrograms, and other forms.

Comparison profilohram, spectra curves syhnalohram in the case of instrumental methods carried out on the basis of a thorough qualitative analysis and preliminary decoding of the data. In this case the method of superposition or overlapping. The research results obtained in numerical form, are processed using different mathematical criteria [4].

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