

## 2026 GHEP-ISFG Forensic Advanced Theoretical Challenge

### Multiple Choice Questions on LR calculations for cases with multiple references

#### *Expectations*

Three approaches to likelihood ratio calculations using multiple persons of interest (POIs) were applied in Case 1 and Case 2:

1. The classical approach (LR calculated per POI)
2. The compound propositions approach
3. The exhaustive propositions approach

This final section of this year's ATC Forensic consists of multiple-choice questions related to these approaches.

1. **Did you view the e-learning material about the 'multiple/ exhaustive propositions approach' at <https://nfi.cappagile.com/s/nSrKP3ot0T93vfQsrB3i9w?>**
  - a. Yes
  - b. No
2. **In which situations is it advisable to use a compound propositions approach in casework (e.g.  $H_p = POI1+POI2+POI3$  /  $H_d = U+U+U$ )? (*Multiple answers may be correct*)**
  - a. When the LR is very low
  - b. When there are multiple persons of interest
  - c. When using a quantitative LR model (incl. peak heights)
  - d. When there are multiple stain profiles
  - e. When this is performed as part of the exhaustive propositions approach
  - f. When using a qualitative LR model (no peak heights)
  - g. Always
  - h. Never
  - i. I do not know
3. **In which situations is it advisable to use an exhaustive (or multiple) propositions approach in casework? (*Multiple answers may be correct*)**
  - a. When the LR is very low
  - b. When there are multiple persons of interest
  - c. When using a quantitative LR model (incl. peak heights)
  - d. When there are multiple stain profiles
  - e. When the compound propositions approach yields a low LR
  - f. When using a qualitative LR model (no peak heights)
  - g. Always
  - h. Never
  - i. I do not know
4. **What is a possible risk of using a compound propositions pair, such as  $POI1+POI2$  vs  $U+U$ ? (*Multiple answers may be correct*)**
  - a. None in any case
  - b. None if you use these propositions within an exhaustive propositions approach
  - c. The LR may not reflect the individual contribution
  - d. True contributor LRs might be overstated

- e. Non contributor LRs might be overstated
- f. I do not know

**5. What is a possible risk of using an exhaustive (/multiple) propositions approach? (*Multiple answers may be correct*)**

- a. None in any case
- b. None if you include hypotheses assuming only one POI
- c. The LR may not reflect the individual contribution
- d. True contributor LRs might be overstated
- e. Non contributor LRs might be overstated
- f. I do not know

**6. What aspects need to be considered when using the exhaustive (or multiple) propositions approach? (*Multiple answers may be correct*)**

- a. This should be applied using a quantitative LR model only
- b. All references must be loaded in the LR software, even if not included in the particular propositions pair
- c. All LRs should be computed against the same default alternative proposition
- d. This can only be applied to cases with up to two POI
- e. I do not know

*Additional comments*

**7. Do you have any comments/notes that you would like to share?**

- a. ...