Multi-Card Structure Inference

g12_u02_w07

Purpose and boundary

Compare original fictional formula and pattern cards. No sample, instrument, procedure, or real-substance identification is requested.

Targets: I can organize multiple constraints, compare candidates, and report uncertainty. **Vocabulary:** candidate, corroboration, conflict, inference, uncertainty, alternative. **Prerequisites:** formula mass, functional-group labels, pattern-card limits.

Fictional File Q contains: formula candidate C_3H_6O; an IR label B (C=O-type); and two NMR signal labels. Candidates A, B, and C are paper drawings with stated feature claims only.

1. What is the purpose of a candidate comparison table?

2. Why is agreement across cards stronger than one isolated label?

3. Why can agreement still fail to prove a unique structure?

4. File Q gives C_3H_6O. What atom counts are constrained?

5. What feature relation is cautiously supported by IR label B?

6. What does two NMR signal labels support about the supplied representation?

7. Candidate A has no oxygen. What File Q constraint conflicts with A?

8. Candidate B has one oxygen and a stated carbonyl feature. Name two File Q relations it may fit.

9. Candidate C has one oxygen but no stated carbonyl feature. What relation should be checked?

10. Why is a candidate not accepted merely because it fits one card?

11. Make a three-row table heading that records formula fit, pattern fit, and uncertainty.

12. A candidate fits formula and IR but has three stated signal environments while File Q supplies two labels. What comparison question remains?

13. Name one reason signal-label counts may not map perfectly to a full structure.

14. What is corroboration in this paper-evidence context?

15. What is a conflict in this paper-evidence context?

16. Write a cautious conclusion if Candidate B fits all stated File Q relations.

17. Write a cautious conclusion if no candidate fits every stated relation.

18. What additional supplied evidence could discriminate between two remaining candidates?

19. Why should a conclusion name both support and limitation?

20. Create a one-sentence rule that prevents overclaiming from File Q.