Book-keeping and Systematics: Summary

Analysis metadata remains a pain point

UX: After systematics (book-keeping of which is metadata), what is the next biggest problem for analysis?

- METADATA!
- Cross-sections, weights, configuration, …

Follow-up of the metadata problem has to keep analysis concerns at the forefront

We don't always have solutions, and where we do, the analysis interface is not seamless – this is what we should strive for.

DAWG - Metadata paper review

John De Stefano (BNL, IT)
Elizabeth Gallas (Oxford, ATLAS, databases)
Giacomo Govi (INFN Padova, CMS)
Thomas Kuhr (LMU Munich, Belle II)
Igor Mandrichenko (FNAL, IT)
Tibor Simko (CERN, IT, reusable analyses)

The Paper

Constraints on future analysis metadata systems in High Energy Physics

T. J. Khoo[5], A. Reinsvold Hall[10], N. Skidmore[16], S. Alderweireldt[15], J. Anders[13], C. Burr[3], W. Buttinger[9], P. David[11], L. Gouskos[3], L. Gray[4], S. Hageböck[3], A. Krasznahorkay[3], P. Laycock[1], A. Lister[14], Z. Marshall[6], A. B. Meyer[2], T. Novak[2], S. Rappoccio[12], M. Ritter[7], E. Rodrigues[8], J. Rumsevicius[3], L. Sexton-Kennedy[4], N. Smith[4], G. A. Stewart[3], and S. Wertz[11]

https://arxiv.org/abs/2203.00463

What next?

Request a detailed summary of the panel's opinions (short arXiv doc?)

Recommendations

- ➤ We strongly encourage the community to continue the systematic and coordinated effort of addressing the metadata structure, tools, access, preservation, and reuse challenge.

- ➤ The term metadata is used for many things. The valuable discussion of metadata scopes in the paper should be continued to reach an even clearer definition and common understanding of metadata scopes.

- ➤ A more formal collection of use cases and determination of requirements would be the desirable next step.

- ➤ We very much hope that HSF will take care of the problem ownership and make sure the next steps are taken for the benefit of the HEP community.

Who?

An **HSF Metadata** working group / activity…tbd

Care needed to make sure we organise this to leverage existing effort

Suggestions for Next Step

→ Provide a detailed discussion of use cases

Start with use cases

→ Describe what problems should be addressed, not what the solution is

across *all* areas

→ Avoid mixing the discussion of the design of a system and how it is used

Covering end-to-end, i.e. conditions, analysis metadata, analysis preservation…

→ Sharpen metadata scopes definitions

→ Derive requirements from use cases, assign them to metadata scopes

Define metadata scopes mapped to use cases

→ Discuss arguments for or against common solutions (across metadata scopes and experiments)

Look for commonality across use cases
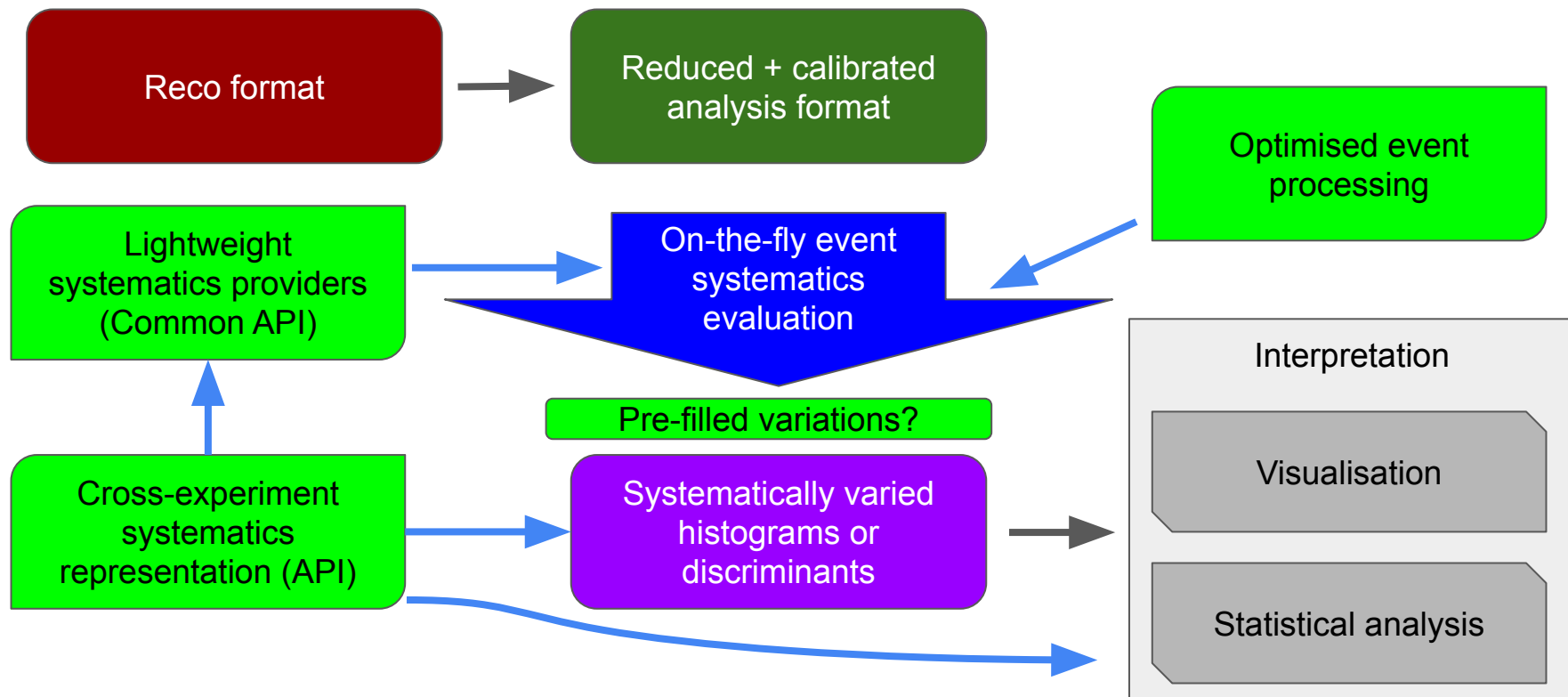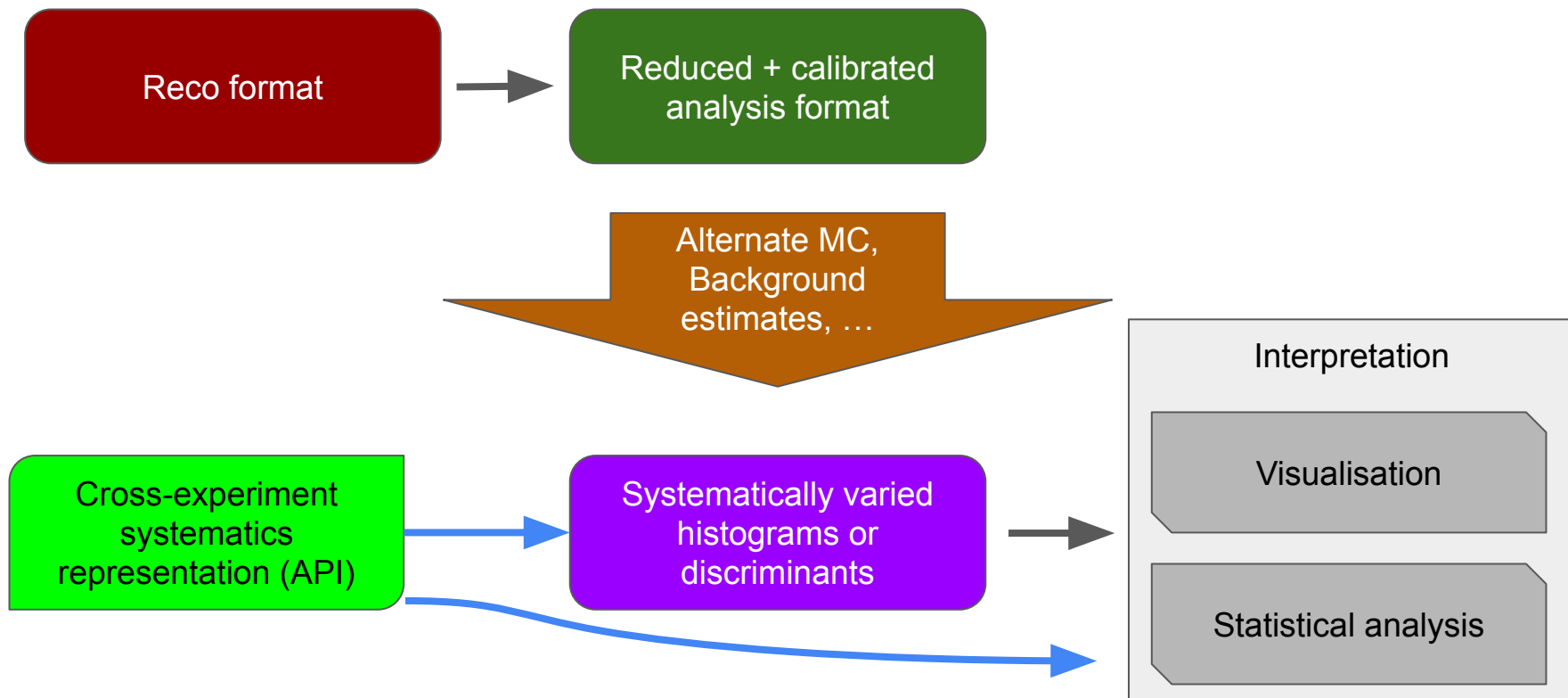
Systematics: The Vision
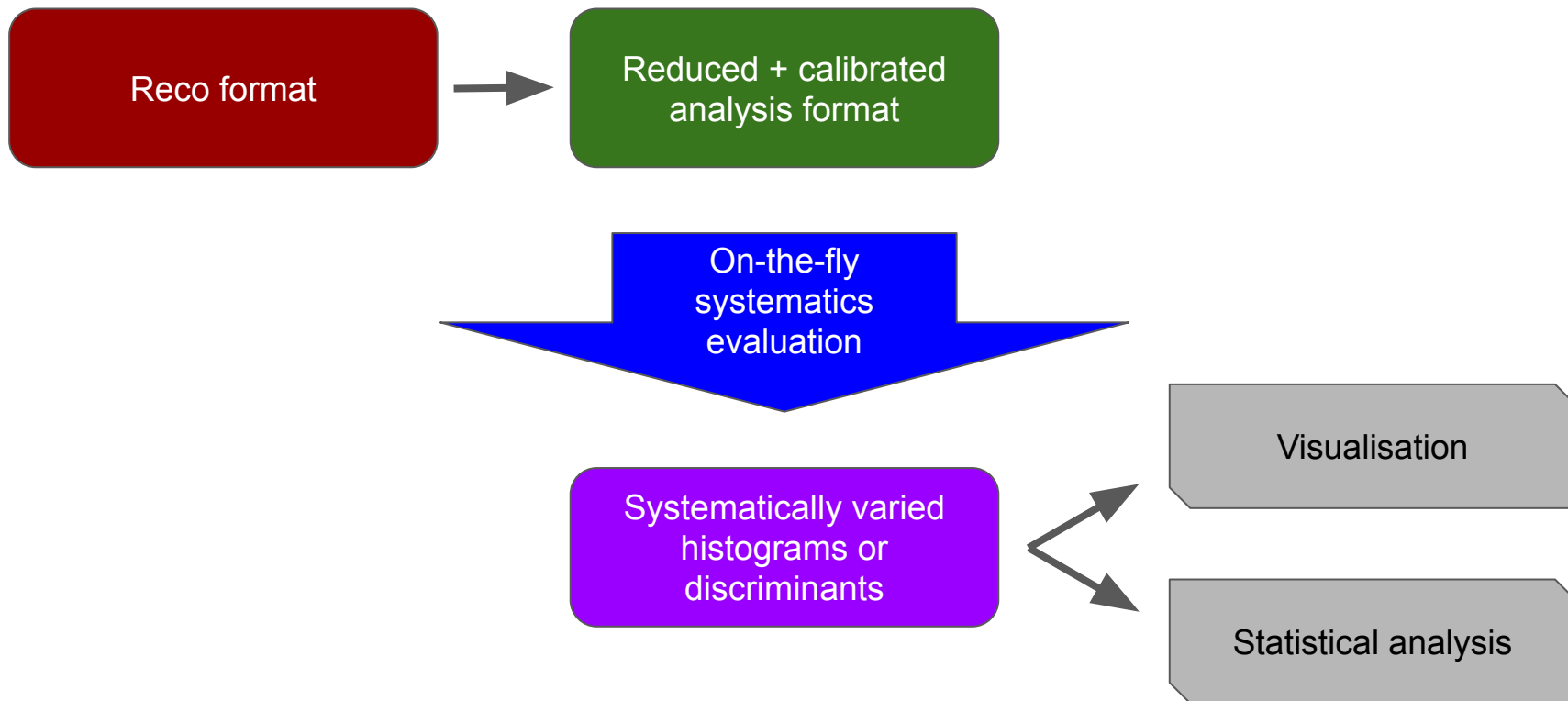
Vision: The deliverables

The "other" systematics

The "ttbar" systematics challenge

- Proposal for a DAWG follow-up

- Can ATLAS/CMS/LHCb do a joint (OpenMC) ttbar analysis?

  - Consistent MC events through collaboration reco

  - Prototype a common systematics representation

  - Propagate to (reasonable subset of) collaboration-specific systematics

  - Statistical combination of unfolded measurements

- Stretch goal: common cross-sections extracted from shared metadata API

- Show this off for AE3!?