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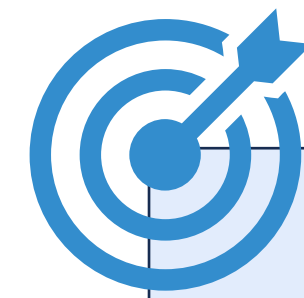
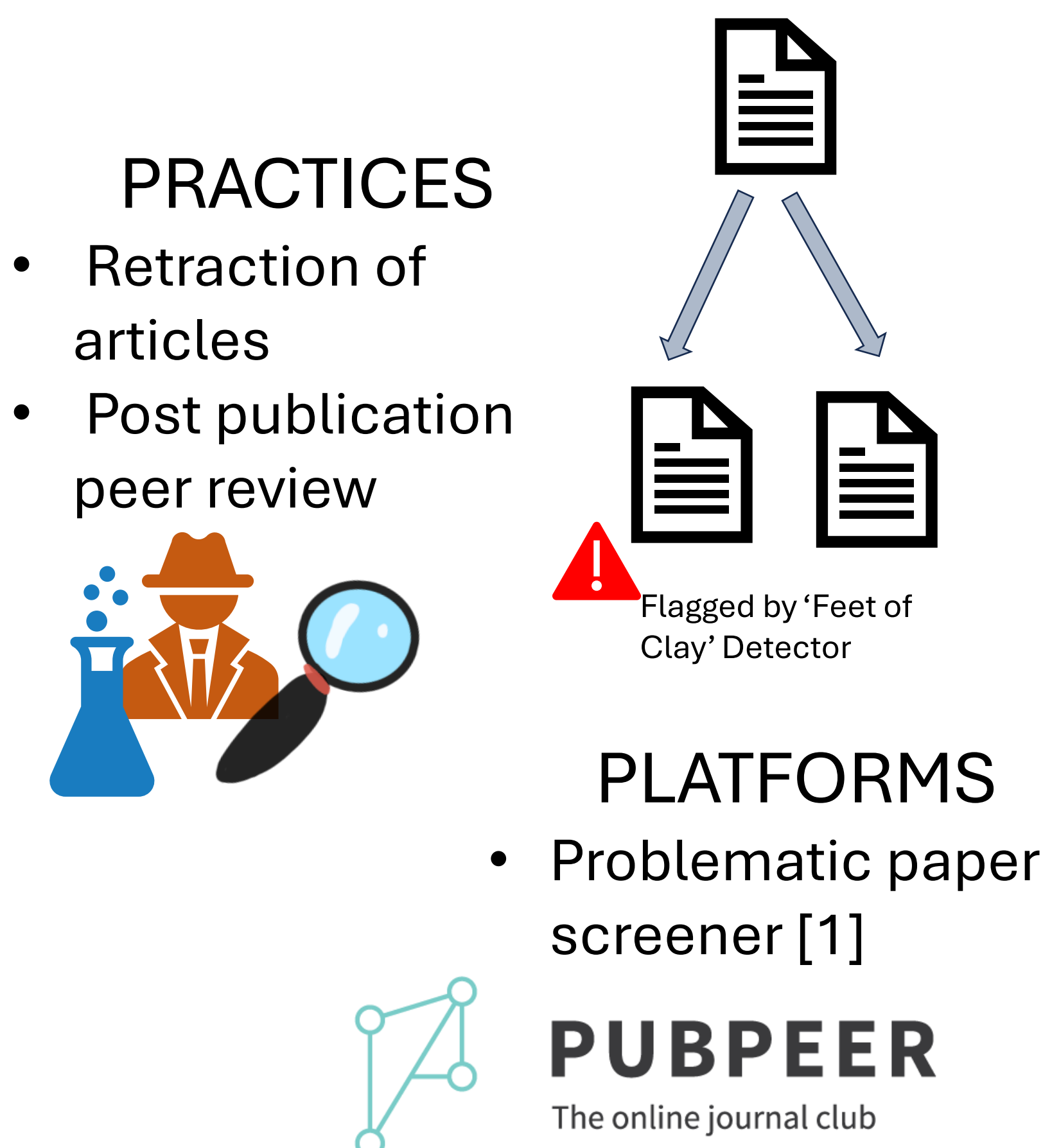
Tailoring Scientific Argument Mining for Scientific Literature Correction

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What is scientific literature correction?



AIM: Providing a tool that helps with the correction process

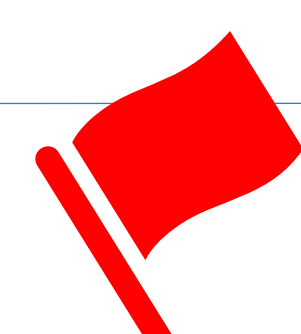
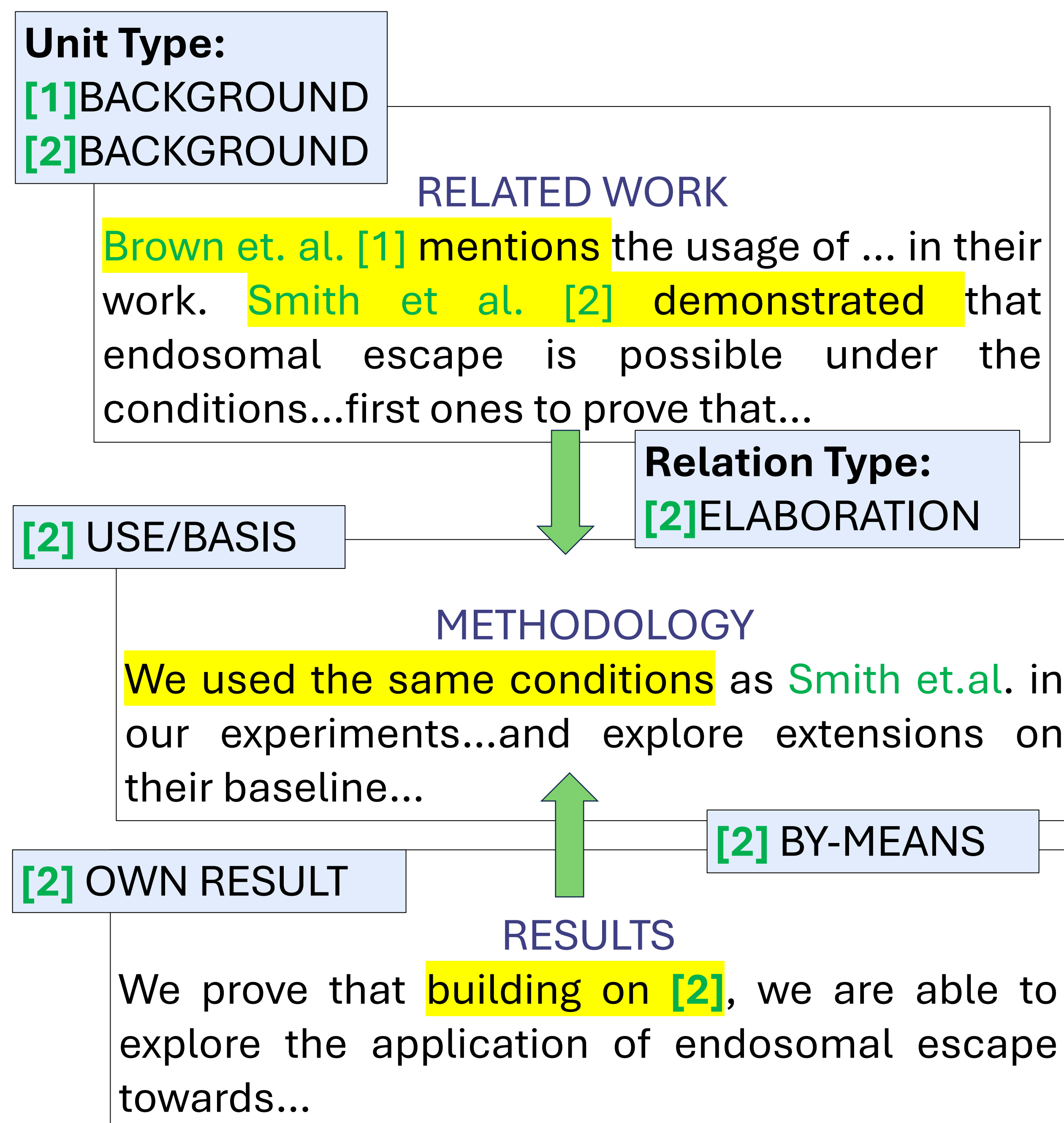
Can **SAM** be used to assess if retracted citations **weaken the validity of claims and results** in a paper?

Scientific Argument Mining (SAM)

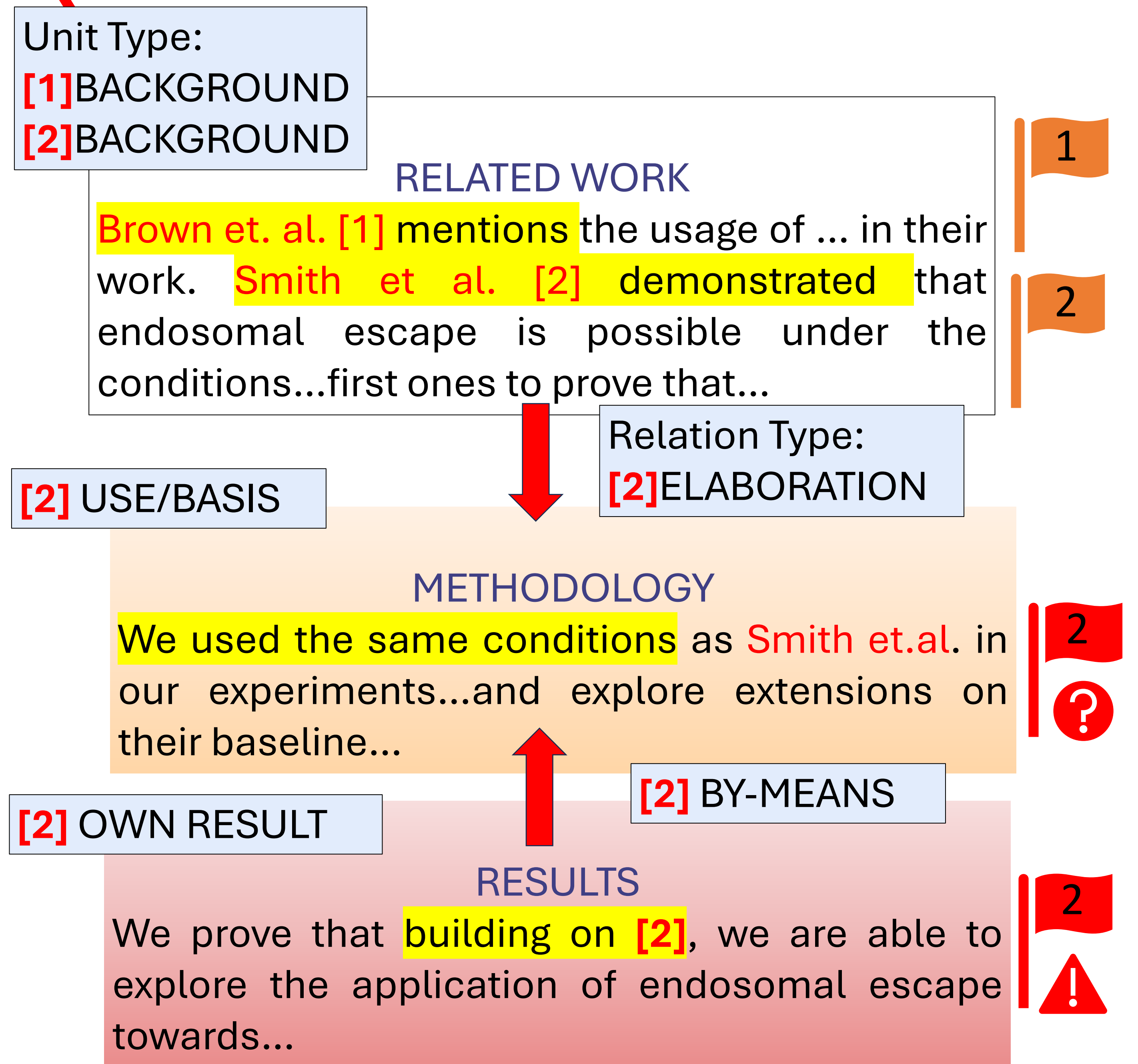
Extraction of the argument structure of scientific articles

- **Argumentative Units:** Labels to identify and classify parts of argument structure (**BACKGROUND/AIM...**)
- **Argumentative Relations:** Labels to classify relations between units (**SUPPORT/ELABORATION...**)
- **Citation Functions:** Purpose of a citation, not always included in SAM frameworks

Example: Argument structure with SAM



When Smith and Brown are retracted



Related Works on SAM

Author	Domain	Corpus Size	Unit Spans	Relation Labels
Teufel [2]	Comp. Ling.	80 articles	Sentence	✗
Teufel [3]	Chem	50 articles	Sentence	✗
Lauscher [4]	Comp. Imaging	40 articles	Token-level	In corpus but not automatized
Binder [5]	Comp. Imaging	39 articles	Mixed	✓

Why tailoring of these works is necessary for our task ?

- Scarce gold data
- Fine grained annotations [2,3] : complex human annotation tasks
- Coarse-grained annotations [4,5] : Not enough to reflect the argumentative complexity
- Token level: span detection of argument units is weak
- Sentence level: Usually one sentence IS NOT one argument unit

Applying SAM to a new domain

- **New dataset** annotated for argumentation using guidelines of [2,3] which overlaps with [4]
- Applying SAM to **nanobiology**
- Applying SAM to scientific literature correction practices
- **Evaluating** automatic SAM system of [5] on new data
- Leveraging from citation function systems

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