Example Cross-DAR and DAE Mini-DAG (Traceable)

Step 1 — DAR: Ambiguity in Annotation Requirements (B2)

DAR paper clearly establishes ambiguity and evolving/inconsistent requirements as a root challenge.

DAR Evidence

"Ambiguous data annotation requirements emerge as a persistent challenge that weakens annotation consistency and AIePS performance." (ID16)

"The challenge is that it's impossible to define unambiguous annotation requirements images are inherently ambiguous." (ID16)

"Currently, defining data annotation requirements is mostly an ad hoc process... it evolves alongside data collection." (ID15)

"We need proper versioning—so we know which batch followed which version of the rules." (ID17)

These quotes establish:

- Unclear / inherently ambiguous requirements
- Ad hoc and evolving guidelines
- Lack of structured version control
- Interpretive uncertainty

This corresponds directly to Our DAG node:

B2 → ambiguous / unclear / evolving guidelines

Step 2 — DAE: Consequence = Inter-Annotator Disagreement

Now we move to the DAE part, where the *error manifestation* appears.

DAE Evidence

"Inter-Annotator Disagreement: variation in labels assigned by different annotators… caused by subjective judgments, ambiguous guidelines, or inconsistent interpretation, resulting in annotation noise and reduced dataset reliability." (ID18)

"Different annotators… will subjectively annotate the object… then we need a second person to correct this." (ID18)

"Determining which pedestrians are 'relevant' was unclear; guidelines did not define it strictly, leading to divergent interpretations." (ID6)

This demonstrates:

- Ambiguous instructions
- Divergent interpretations
- Increased reconciliation effort
- Reduced dataset reliability

Which matches our DAE node:

Inter-Annotator Disagreement

The Causal Integration (DAR → DAE)

We can now write this explicitly:

The DAR study identifies ambiguity, evolving requirements, and inconsistent guideline definitions as persistent structural challenges (B2, B3, B4)

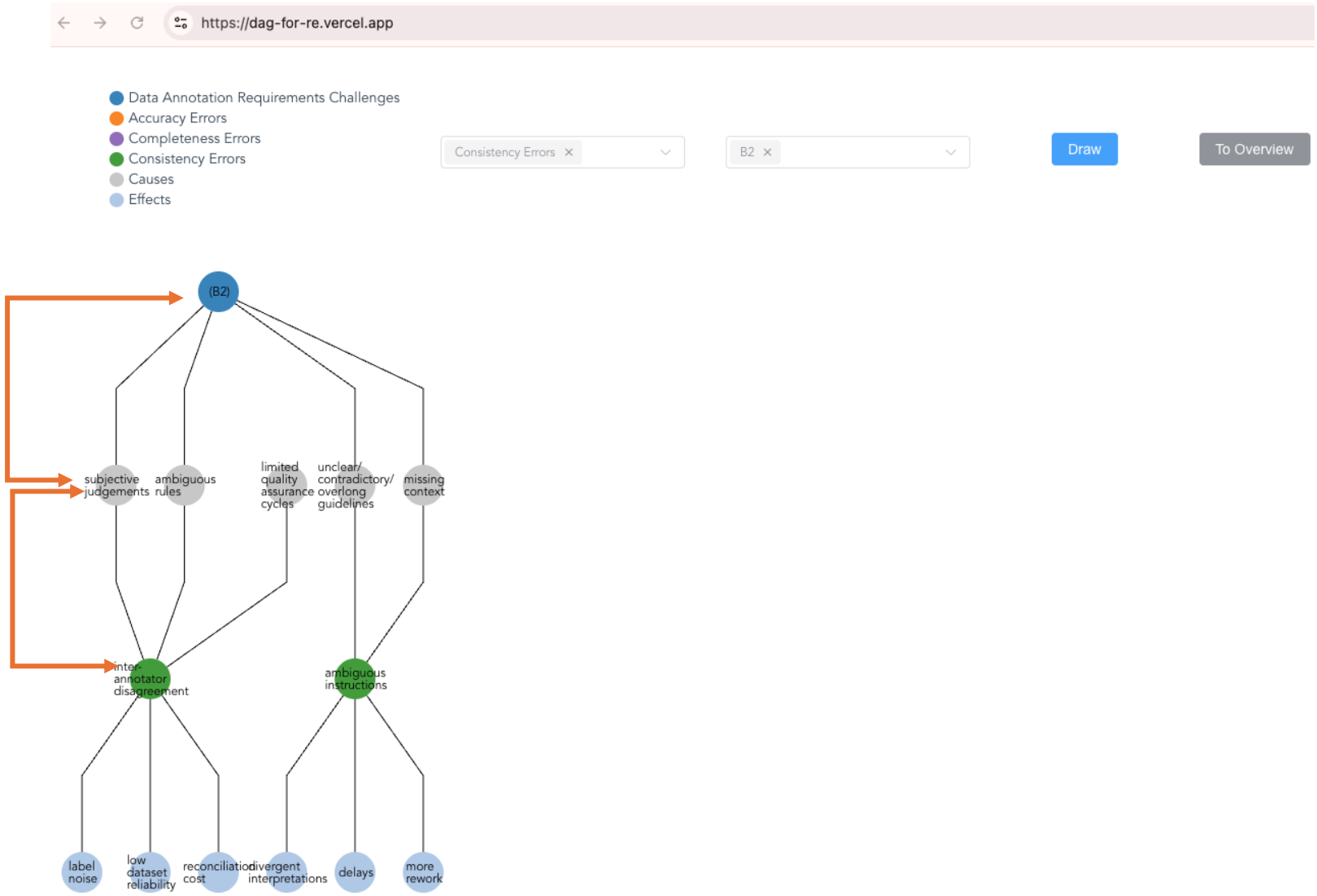
These ambiguous and ad hoc requirements create interpretive uncertainty among annotators. The DAE study empirically shows that such ambiguity materializes as inter-annotator disagreement and divergent interpretations, producing annotation noise and reduced dataset reliability.

This is **not speculative inference** because:

- DAR provides evidence of ambiguous/evolving requirements.
- DAE provides evidence that ambiguous guidelines cause disagreement.
- The link is supported explicitly in DAE: “caused by… ambiguous guidelines”.

Clean Mini-DAG Description (traceable)

We can present it like this:

DAR (B2: Ambiguity in Annotation Requirements)
↓
Unclear / Ambiguous rules / subjective judgment
↓
DAE (Inter-Annotator Disagreement)
↓
Annotation noise → Reduced dataset reliability

The final DAG in the app representation