Provenance DM Extra Meeting

- Instrument characteristics + ambient conditions
  - Should be modeled elsewhere, as entities
  - Use provenance data model only for *relations* between data/activities/agents

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- Prototypes: yes or no?
  - Is W3C enough? Too abstract?
  - Or include prototypes, at least “Method” for “Activities”?
  - Using known methods and data-types could make it more suited for astronomical use cases; or put this information into a vocabulary/thesaurus
  - Could use something like Prov-Templates
  - What's the experience of CTA-people?

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- RoleMap classes
  - Do we need them explicitly? For each annotated relation?
  - Or are annotated relations (graphs) enough?
  - Maybe extra classes needed for VO-DML?

  - Extra classes are useful, if entities and activities of different types are stored as the same object-type, i.e. in the same database table. Entities can take different roles for different activities.
  - If there are subtypes used for each type of activity, this is probably not needed.

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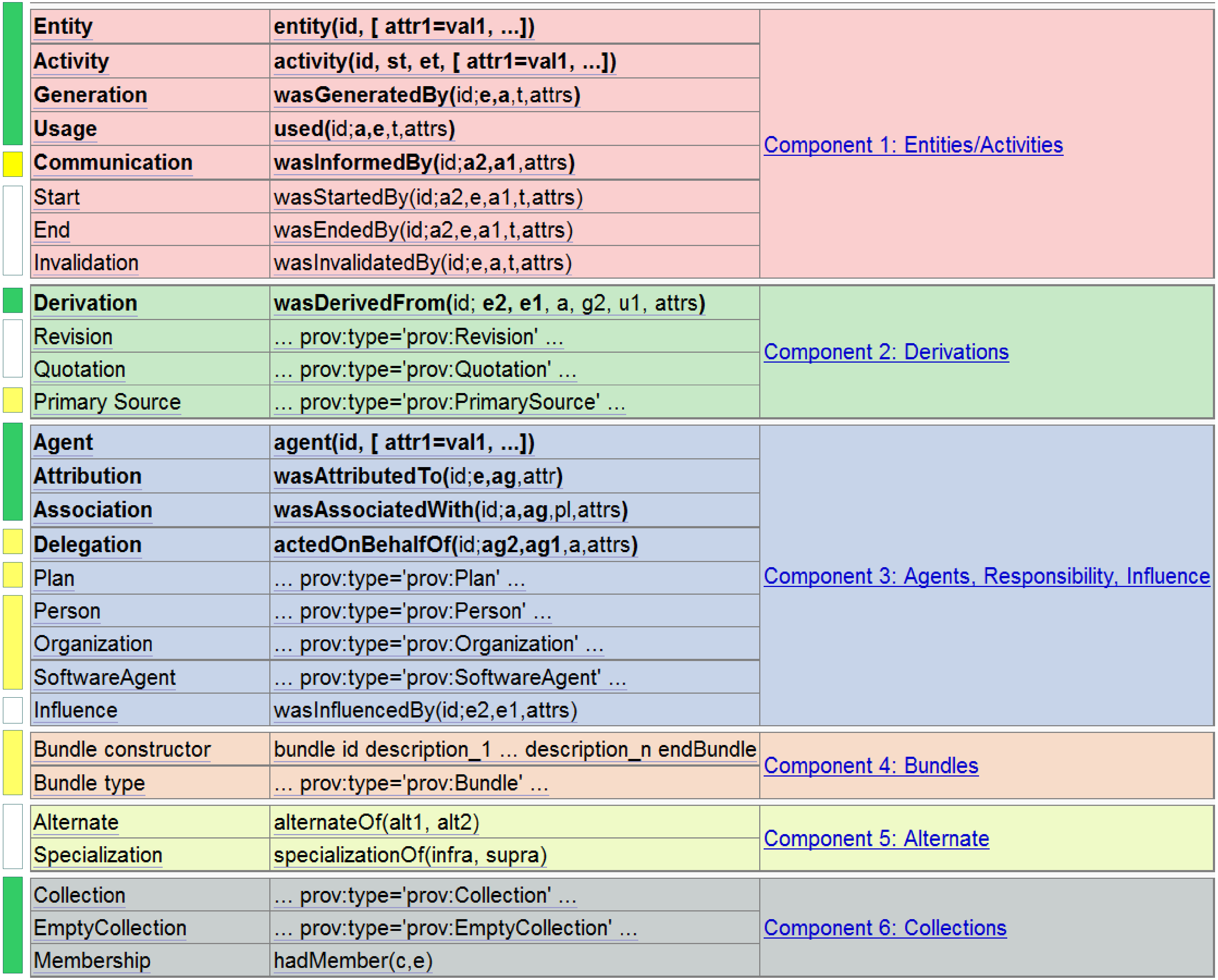
- Other relations/types from W3C
  - Which ones could be useful, which ones not?

Types and Relation in W3C (Table 6)

Role in IVOA DM:

- 🟩 needed
- 🟨 maybe
- ⬜ not needed?



🟩	**Entity**	**entity(id, [attr1=val1, ...])**	Component 1: Entities/Activities
🟩	**Activity**	**activity(id, st, et, [attr1=val1, ...])**	
🟩	**Generation**	**wasGeneratedBy(**id;**e,a**,t,attrs**)**	
🟩	**Usage**	**used(**id;**a,e**,t,attrs**)**	
🟨	**Communication**	**wasInformedBy(**id;**a2,a1**,attrs**)**	
⬜	Start	wasStartedBy(id;a2,e,a1,t,attrs)	
⬜	End	wasEndedBy(id;a2,e,a1,t,attrs)	
⬜	Invalidation	wasInvalidatedBy(id;e,a,t,attrs)	
🟩	**Derivation**	**wasDerivedFrom(**id; **e2, e1**, a, g2, u1, attrs**)**	Component 2: Derivations
⬜	Revision	... prov:type='prov:Revision' ...	
⬜	Quotation	... prov:type='prov:Quotation' ...	
🟨	Primary Source	... prov:type='prov:PrimarySource' ...	
🟩	**Agent**	**agent(id, [attr1=val1, ...])**	Component 3: Agents, Responsibility, Influence
🟩	**Attribution**	**wasAttributedTo(**id;**e,ag**,attr**)**	
🟩	**Association**	**wasAssociatedWith(**id;**a,ag**,pl,attrs**)**	
🟨	**Delegation**	**actedOnBehalfOf(**id;**ag2,ag1**,a,attrs**)**	
🟨	Plan	... prov:type='prov:Plan' ...	
🟨	Person	... prov:type='prov:Person' ...	
🟨	Organization	... prov:type='prov:Organization' ...	
🟨	SoftwareAgent	... prov:type='prov:SoftwareAgent' ...	
⬜	Influence	wasInfluencedBy(id;e2,e1,attrs)	
🟨	Bundle constructor	bundle id description_1 ... description_n endBundle	Component 4: Bundles
🟨	Bundle type	... prov:type='prov:Bundle' ...	
⬜	Alternate	alternateOf(alt1, alt2)	Component 5: Alternate
⬜	Specialization	specializationOf(infra, supra)	
🟩	Collection	... prov:type='prov:Collection' ...	Component 6: Collections
🟩	EmptyCollection	... prov:type='prov:EmptyCollection' ...	
🟩	Membership	hadMember(c,e)	

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- Accessibility of intermediate data products
  - Ignore non-public data? Flag them?
  - Provide only their header/metadata, more details on request?
  - Different provenance “views” for public/non-public?

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- Level of detail
  - How to allow more/less details?
  - “Plan” for summarizing e.g. pipeline, workflow in one entity
  - “Bundle” mechanism allows to have provenance of provenance

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- Collections
  - Can/Should/Shouldn't we allow entities to belong to >1 collection?
  - Need then associations, or model this using a mapping class+composition+references

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- Vocabulary lists
- Links to other data models
- Name spaces/prefix: what will they mean, where to define