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Modeling Object Relationships in Fedora Commons using RDF

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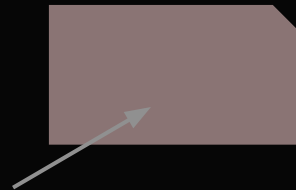
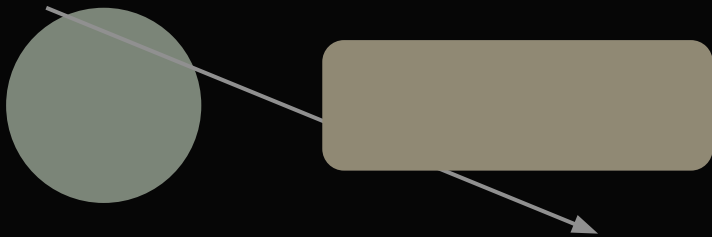
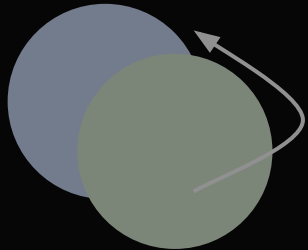
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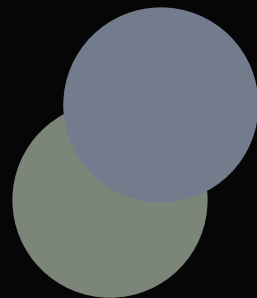
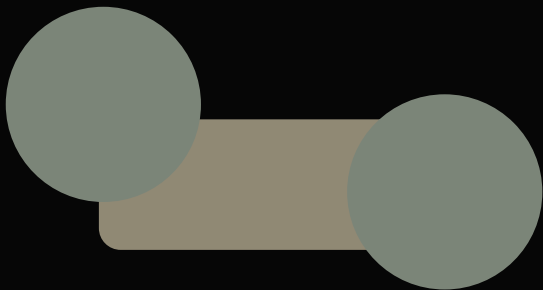
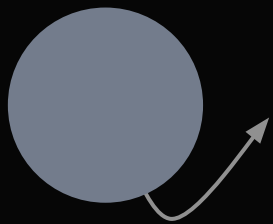
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Modeling Object Relationships in Fedora Commons using RDF statements

Graham Hukill, MMDPP 2014, CMU



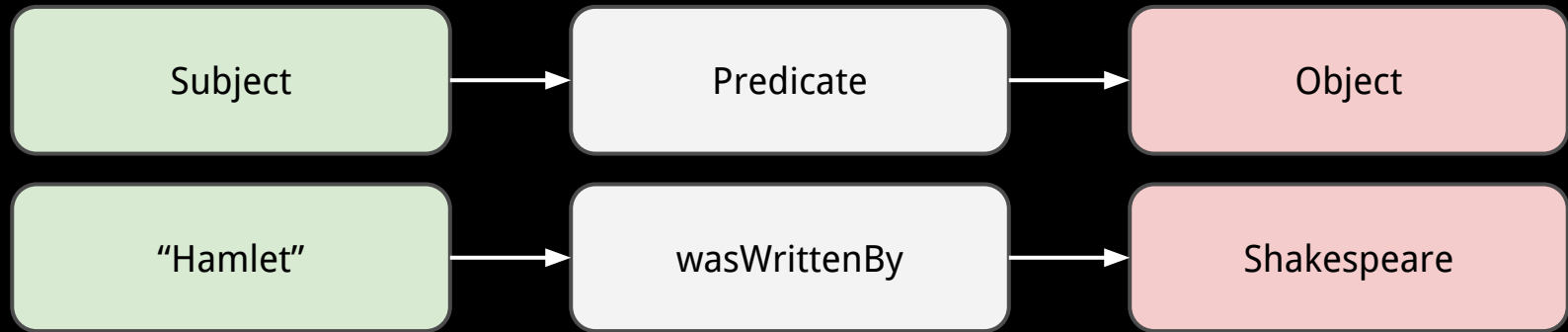
Modeling digital object relationships with RDF statements is perhaps the single most important thing we do in creating our digital collections infrastructure.



What is RDF?

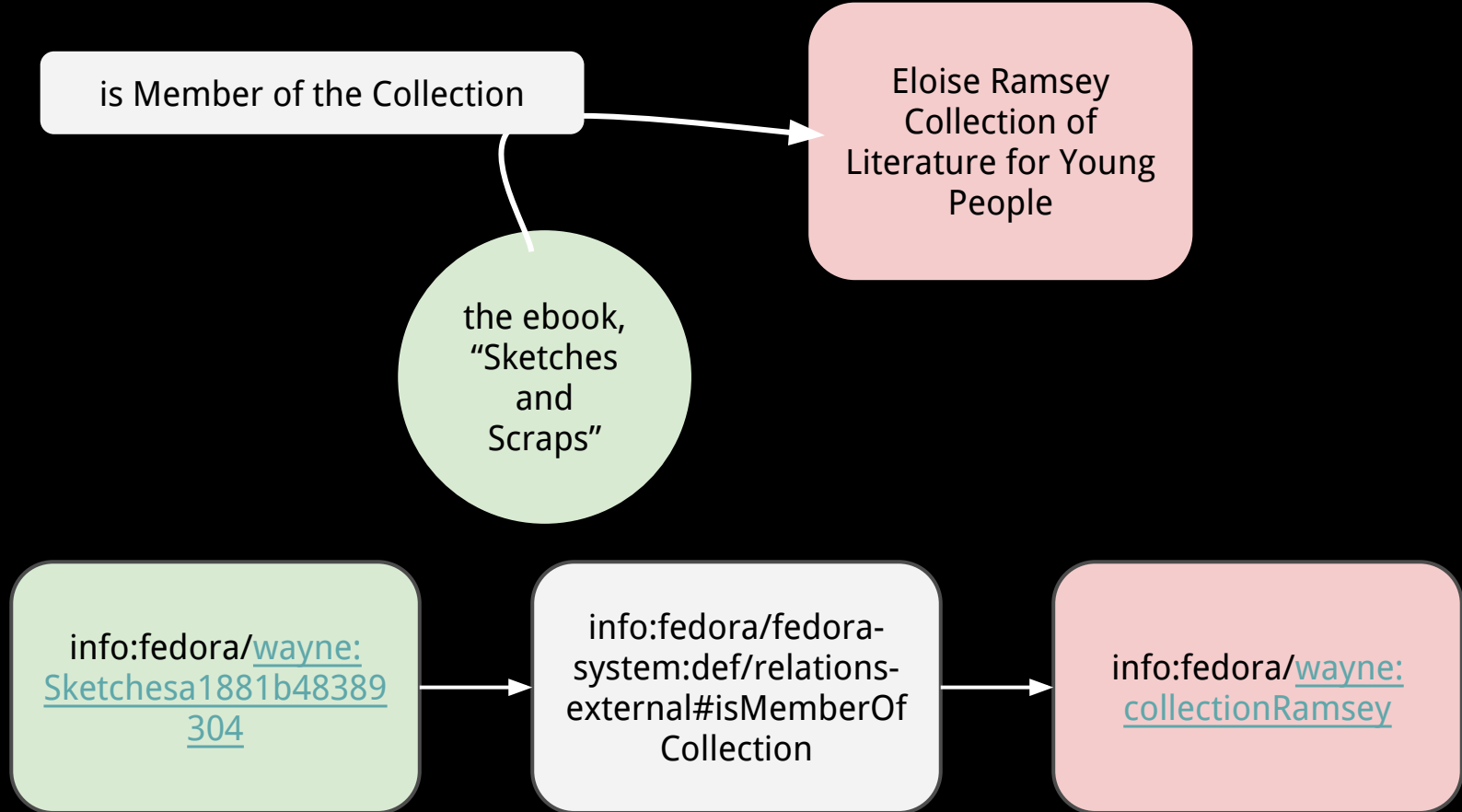
- “Resource Description Framework”
- In Fedora Commons
 - “object-to-object metadata...encoded in XML using the Resource Description Framework (RDF)”
- Written in “triples”, encoded in XML:
subjects, predicates, objects (SPO)

RDF triples = sentences for machines

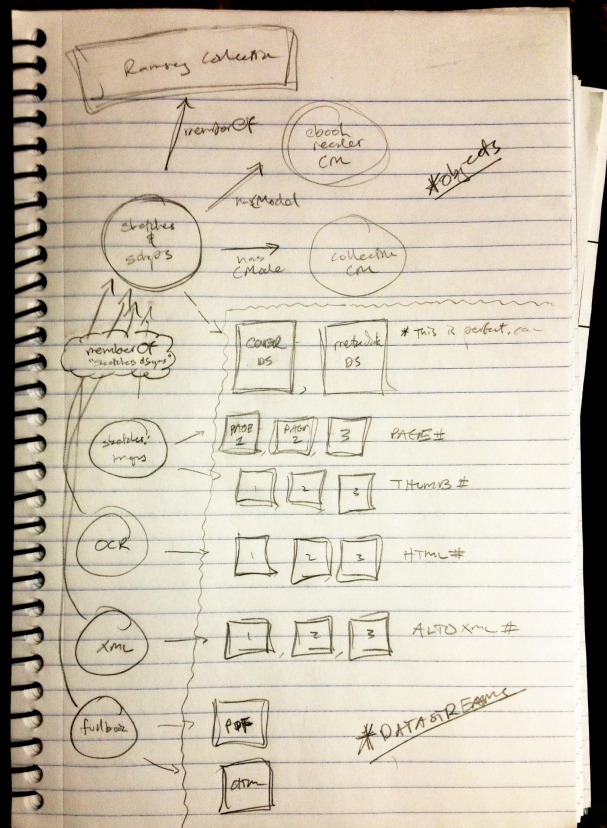


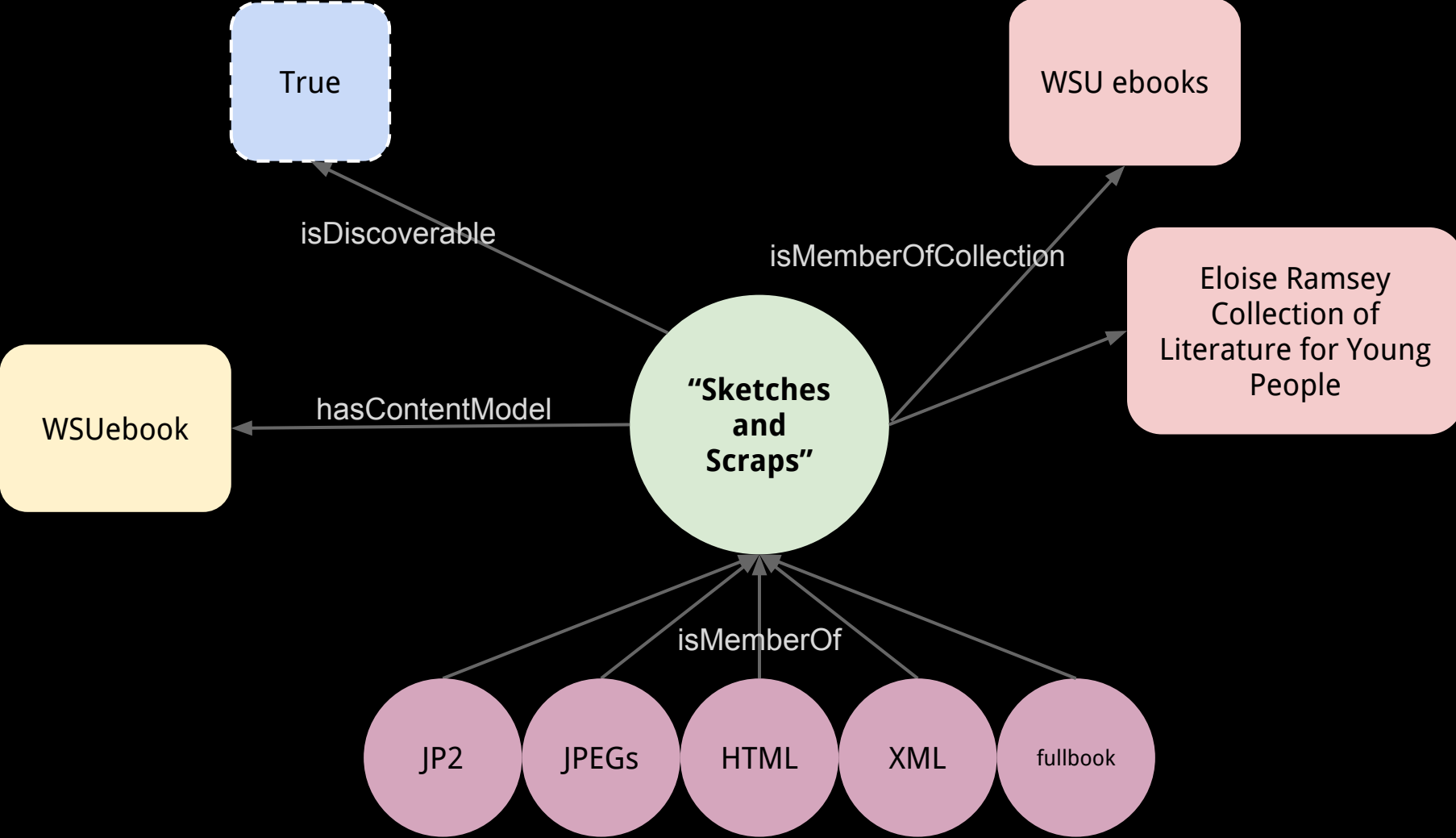
* Think “subject” of the RDF statement itself. In Fedora Commons that inferred; Fedora RDF statements are mostly **predicates** and target **objects**, from the point-of-view of the subject.

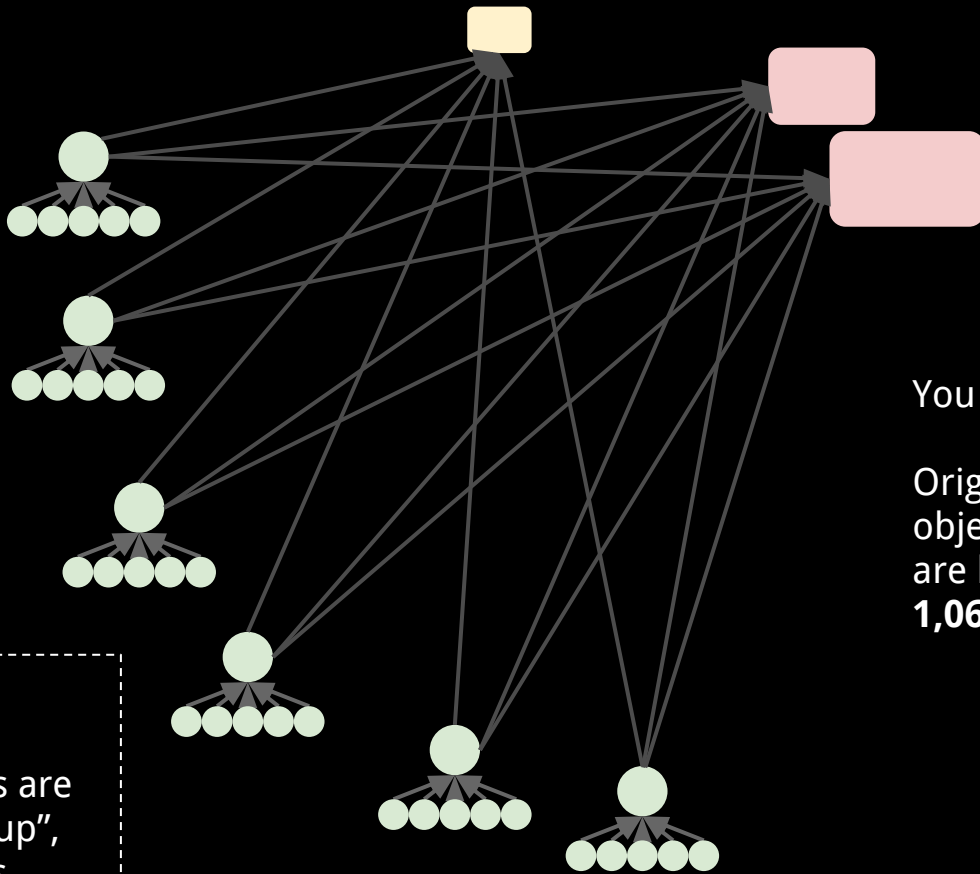
RDF triples = sentences for machines



This is what the process can look like...







You get a lot of these, real quick.

Originating from the roughly 7,000+ objects we have in Fedora Commons, we are hovering around **1,068,841** RDF relationships.

Fun Fact!

RDF statements are often “bottom-up”, resulting in less brittle networks of relationships.

RDF triples for “Sketches and Scraps”

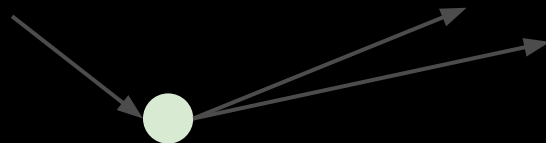
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So, why so important?



- Normalized content modeling across collections supports preservation
- Logical and consistent modeling is the backbone of a powerful front-end

The future...



- visualize RDF relationships in Fedora for management and pleasure
- codify our content models in objects / documents we can use to programmatically verify the integrity of objects in Fedora
- continue to create relationships important to our digital collections platform, but strive to align with community adopted content models as they emerge (e.g. Islandora Solution Packs)
 - what if anyone could write a front-end that communicated with the architecture of your content modeling?
- blur the lines between inter-object relationships in Fedora, and more traditional RDF relationships that point to external resources and authorities online (aka, the Semantic Web)
 - did you know, there is not a LOC subject heading for “digital collection” to point to?

Credit to other RDF modelers:
Cole Hudson, Joshua Neds-Fox, Amelia Mowry, Axa Mei Liauw

Thanks!

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Images:

"Two Chickens" - <https://www.flickr.com/photos/freefoto/3163626257/>

"eggs al natural" - <https://www.flickr.com/photos/junctions/2937684239/>