LINKED JAZZ

Ontologies in the Time of Linked Data

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NASKO 2015
June 19, 2015

Overview

- Application scenario: Linked Jazz
- Bird's eye view of Linked Open Data
- Ontology Building Methodology

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Project Goals

Identify the network of relationships among jazz artists described in interview transcripts

From The Nathaniel C. Standifer Video Archive of Oral History: Black American Musicians Located in the African American Music Collection at the University of Michigan
http://www.umich.edu/~afroammu/standifer/rivers.html

Sam Rivers

D = Darryl Duncan R = Sam Rivers

D Good afternoon, here we are. This is an interview for the Afro-American music collection. My name is Darryl Duncan and I'm interviewing Mr. Sam Rivers. Today is March 26, 1988.

Mr. Sam Rivers, you have been a saxophonist of note and it's really a pleasure for me to be here talking with you. R Thank you very much. It's a pleasure to be here.

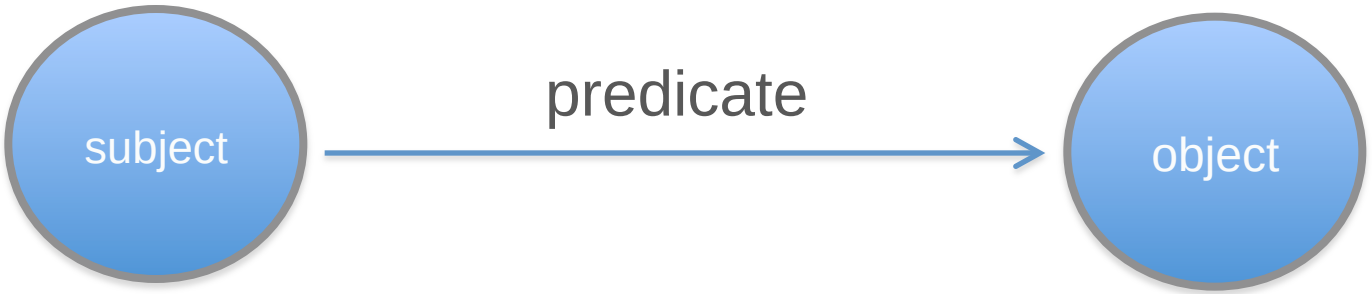
D Especially from my musical perspective. First, could you tell us something about your musical training and how you got started as a saxophonist? R I got started as a saxophonist rather late, but the musical training goes back to practically birth. My father and mother are both musicians. My grandfather and his two sisters were musicians. Just about all relatives play some sort of musical instrument.

D You come from a musical family- R Yes, I would say. My mother is a music teacher and I got started studying the piano around four or five something like that in Chicago. I was born in Alvino, Oklahoma. My father and mother were traveling - we were on tour with the Silver Tone Quartet. My father was the first tenor and my mother was the accompanist; so I was born on the road and they were out of Chicago so Alvino, Oklahoma which it say on the birth certificate was a stop on a tour. So, we lived in Chicago. My mother took a job in Shorter College in north Little Rock when I was seven to maybe ten so I came up on the campus and went to Catholic school in Little Rock.

D I've always read on liner notes and things like that that Sam Rivers is from Boston. When did you end up in Boston and what would you say about Boston that could be called a brand of your musical identity? The Boston kind of sound? R Boston was after I had completed the military service. I was in the Navy for WWII and after that I went to Boston to study at the Conservatory. At the time I think it was a fortunate choice - I had a choice between New York or Boston and I chose Boston to further my musical growth, but I was already a musician before I went into the Navy. I wasn't in the band and there were some other trades I liked. I liked navigating and I also went to a motion picture editing school and edited films for the Navy. The musical career was already in progress so I decided to go to Boston to study more. Fortunately at that time there were quite a few musicians that went on to greater things that we were all there together. Jackie Byard, Gi Gi Grice, Quincy Jones, Alan Dawson, Nat Pierce, Charlie Mariano, and many more that I'm sure I'm missing. Frank Kidd, an alto player that was very advanced for his time. I remember his sounding like Eric Dolphy in the late forties. Everyone was laughing, of course, and scratching their chins. I remember these kinds of situations. There were always these kinds of musicians around that went past the accepted bounds. When they did, they weren't accepted as all there or a bit eccentric but never really taken seriously until the late fifties like Arnette Coleman.

D So would you say that these types of influences early in your career can be accounted for as the heavy influence on your progressive style - your forward looking style? R I think all the influences combined - we're all sponges you know if we're open enough, people that are not open get it anyway, we don't remember where we got it from but we

RDF Triples



Billy Strayhorn composer of Take the "A" Train

```
<http://dbpedia.org/resource/Billy_Strayhorn>
<http://purl.org/ontology/mo/composer>
<http://dbpedia.org/resource/Take_the_%22A%22_Train>
```

Knowledge Representation Languages

- RDF Schema (RDFS)
- Web Ontology Language (OWL)
- Simple Knowledge Organization System (SKOS)

Knowledge Representation Languages

RDF Schema (RDFS)

- Defines classes and properties
- Organizes them hierarchically

Knowledge Representation Languages

Web Ontology Language (OWL)

- Built on RDF and RDFS, but capable of representing complex relationships
- Logical combination of classes—intersections, unions, and complements
- Axioms on properties—transitive, symmetric, functional, inverse

Knowledge Representation Languages

Simple Knowledge Organization System (SKOS)

- OWL ontology
- Describes name authorities with *skos:prefLabel* and *skos:altLabel*
- Supports data mapping with

skos:exactMatch, skos:closeMatch

Methodology

Six phases

- Specification
- Modeling
- Generation
- Linking
- Publication
- Exploitation

(Vila-Suero et al., 2014; Heath and Bizer, 2011; Villazón-Terrazas et al., 2011)

LINKED JAZZ

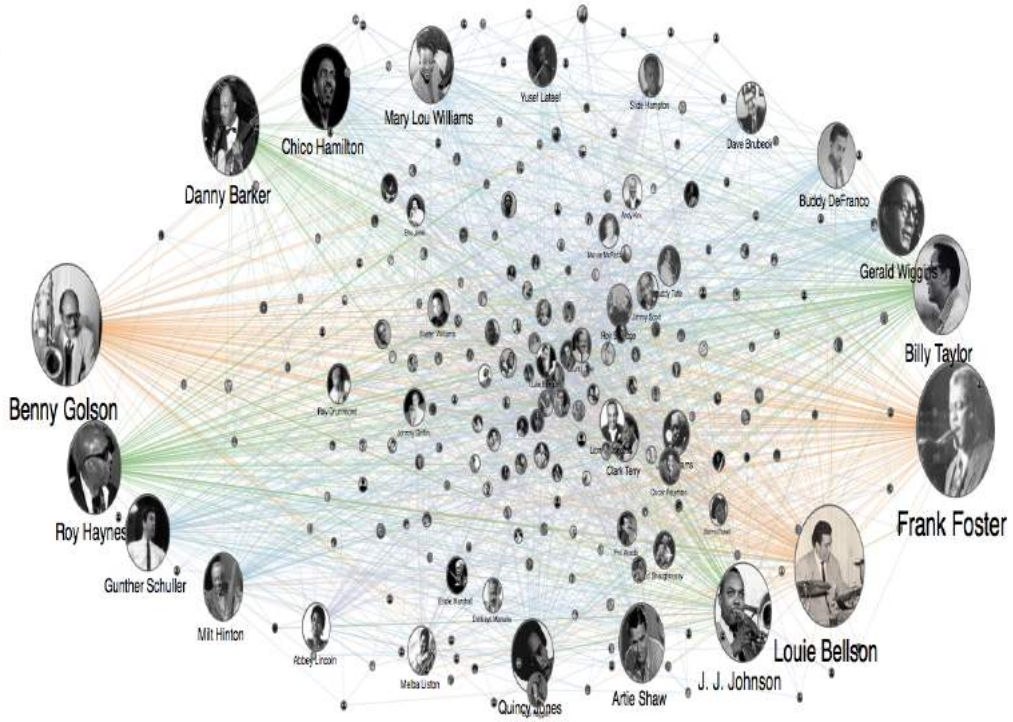
Specification

Purpose

- A model to describe the datasets created within the project

Scope

- Domain of jazz music
- Originally limited to jazz artists and social relationships
- Now includes music-related data (performances, discographies, etc.)



Linked Jazz Ontology Namespace

Best practice URI path:
http://(domain)/(type)/(concept)/(reference)

Linked Jazz Ontology Namespace:
http://linkedjazz.org/ontology

Example Linked Jazz Ontology URI:
http://linkedjazz.org/ontology/playedTogether

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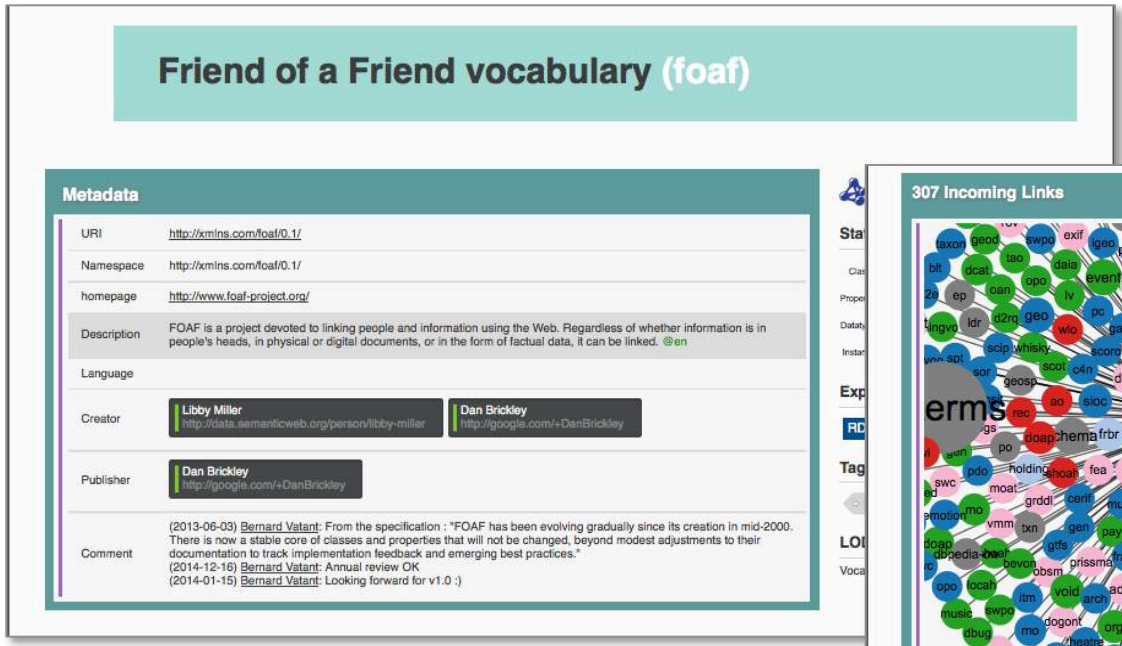
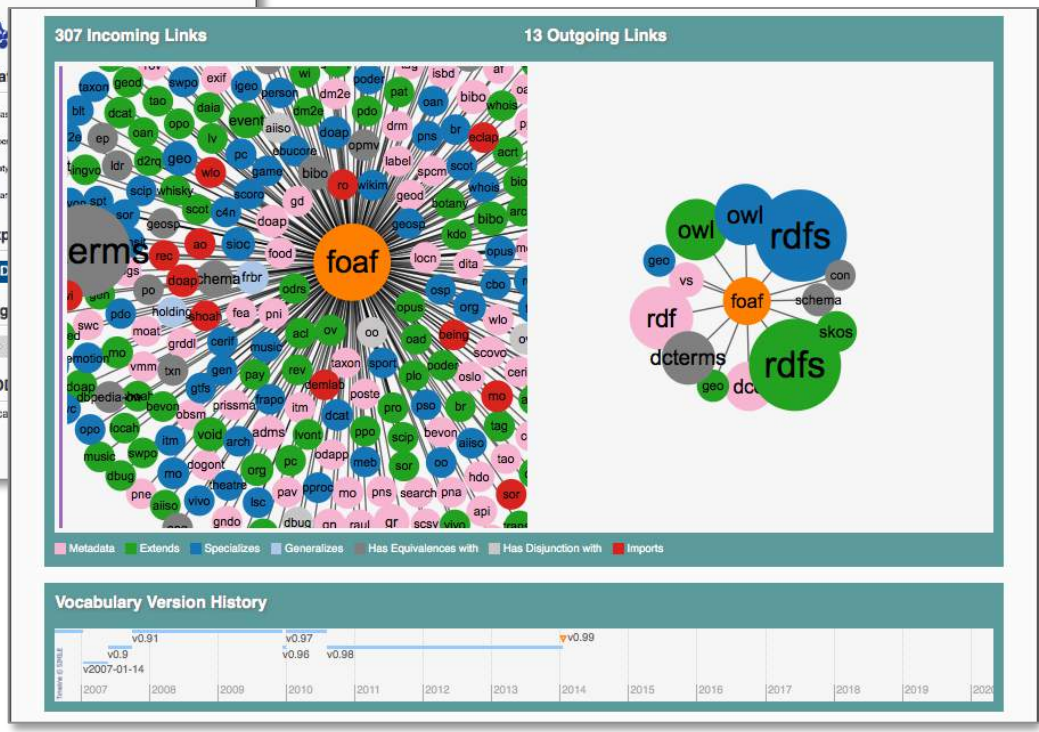
Modeling

Vocabulary Selection



Linked Open Vocabularies



Criteria

- Usage
- Maintenance and Governance
- Coverage
- Expressivity

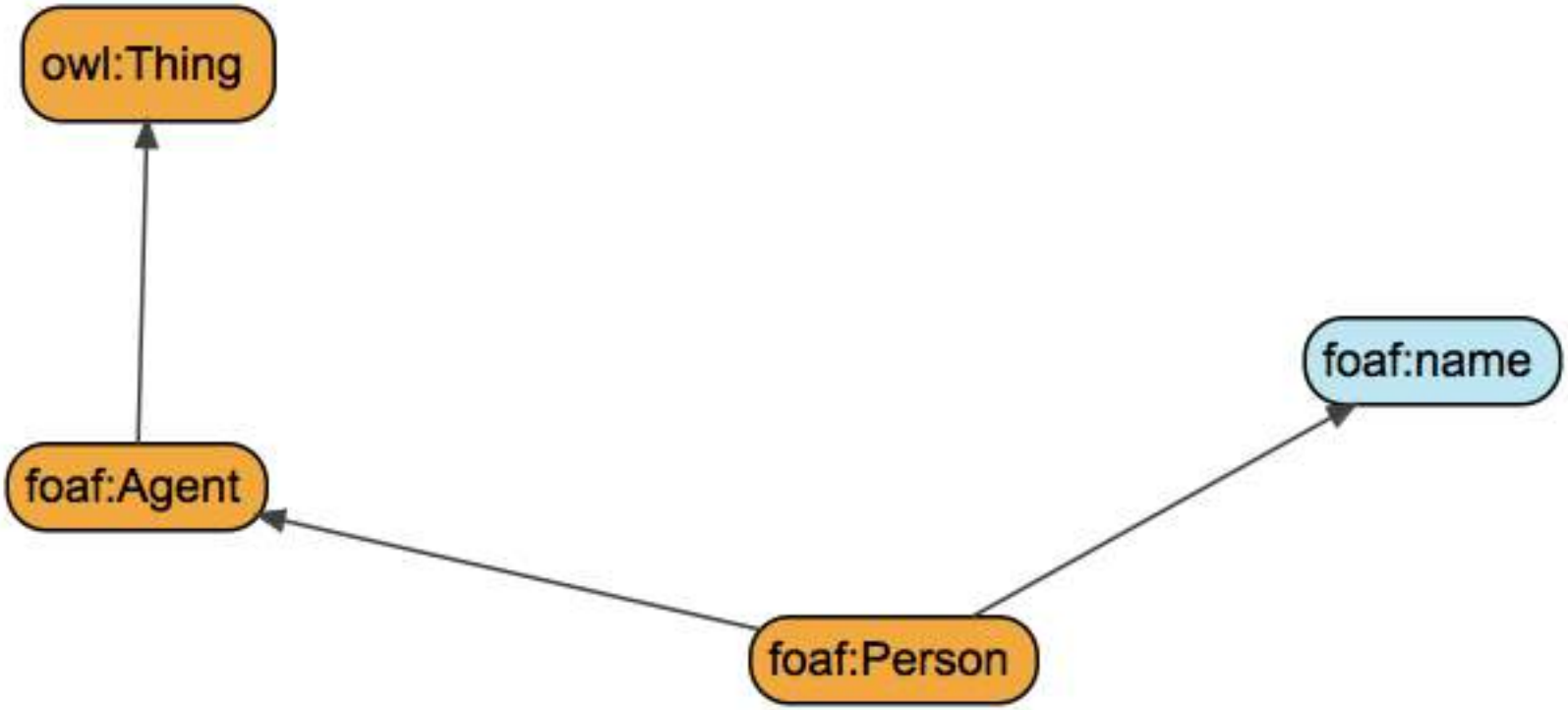
Modeling

Source Vocabularies

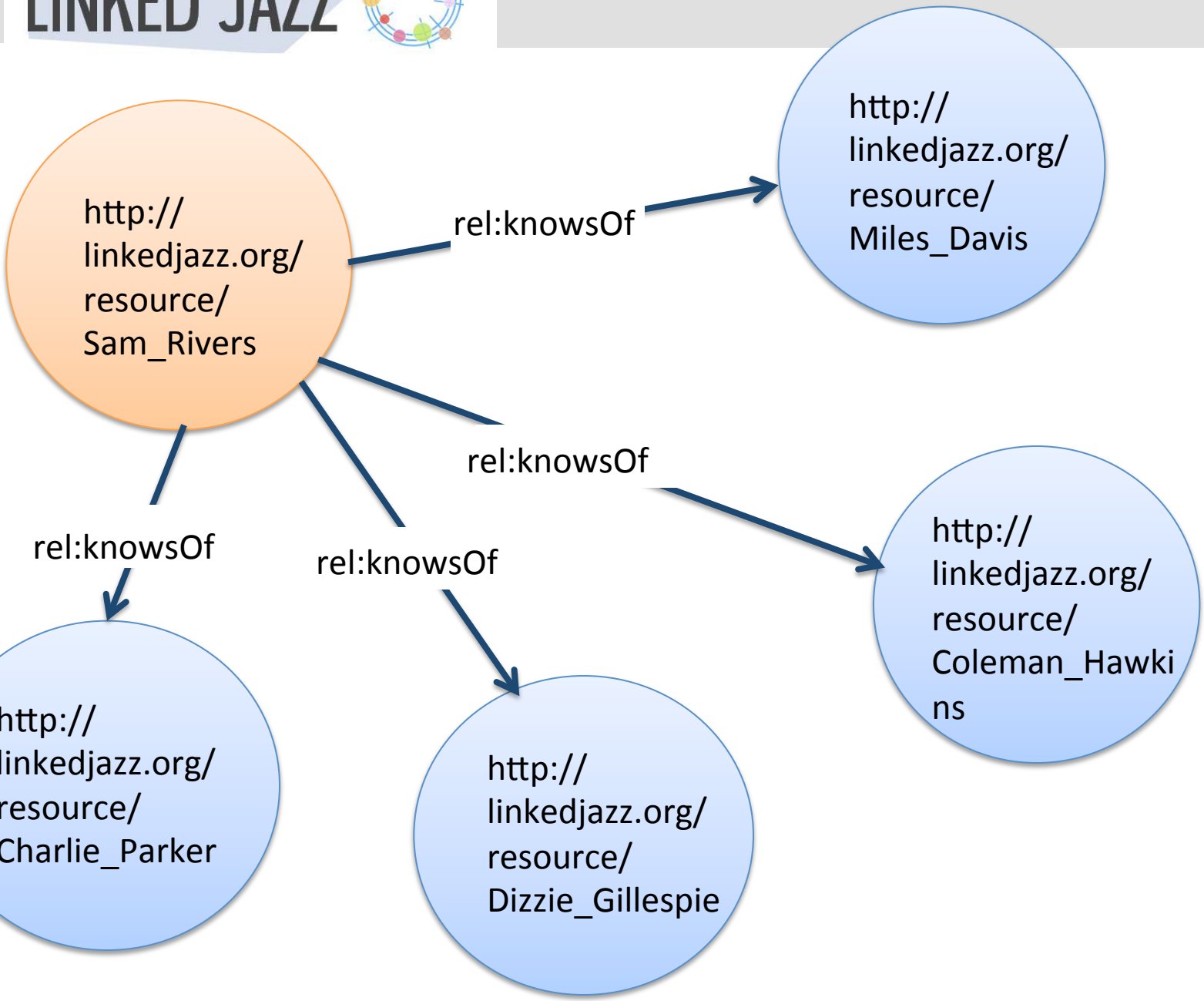
bf:	http://bibframe.org/vocab/ – *namespace for BIBFRAME: Bibliographic Framework Initiative*
dbpedia-owl:	http://dbpedia.org/ontology – *namespace for DBPEDIA: DBpedia ontology*
event:	http://purl.org/NET/c4dm/event.owl# – *namespace for EVENT: Event Ontology*
foaf:	http://xmlns.com/foaf/0.1/ – *namespace for FOAF: 'Friend of a Friend' vocabulary*
mo:	http://purl.org/ontology/mo/ – *namespace for MO: The Music Ontology*
owl:	http://www.w3.org/2002/07/owl# – *namespace for OWL: Web Ontology Language*
rel:	http://purl.org/vocab/relationship/ – *namespace for REL: Relationship vocabulary*
rdf:	http://www.w3.org/1999/02/22-rdf-syntax-ns# – *namespace for RDF: Resource Description Framework*
rdfs:	http://www.w3.org/2000/01/rdf-schema# – *namespace for RDFS: RDF Schema*
schema:	http://schema.org/ – *namespace for SCHEMA: Schema.org*
skos:	http://www.w3.org/2004/02/skos/core# – *namespace for SKOS: Simple Knowledge Organization System*

Modeling

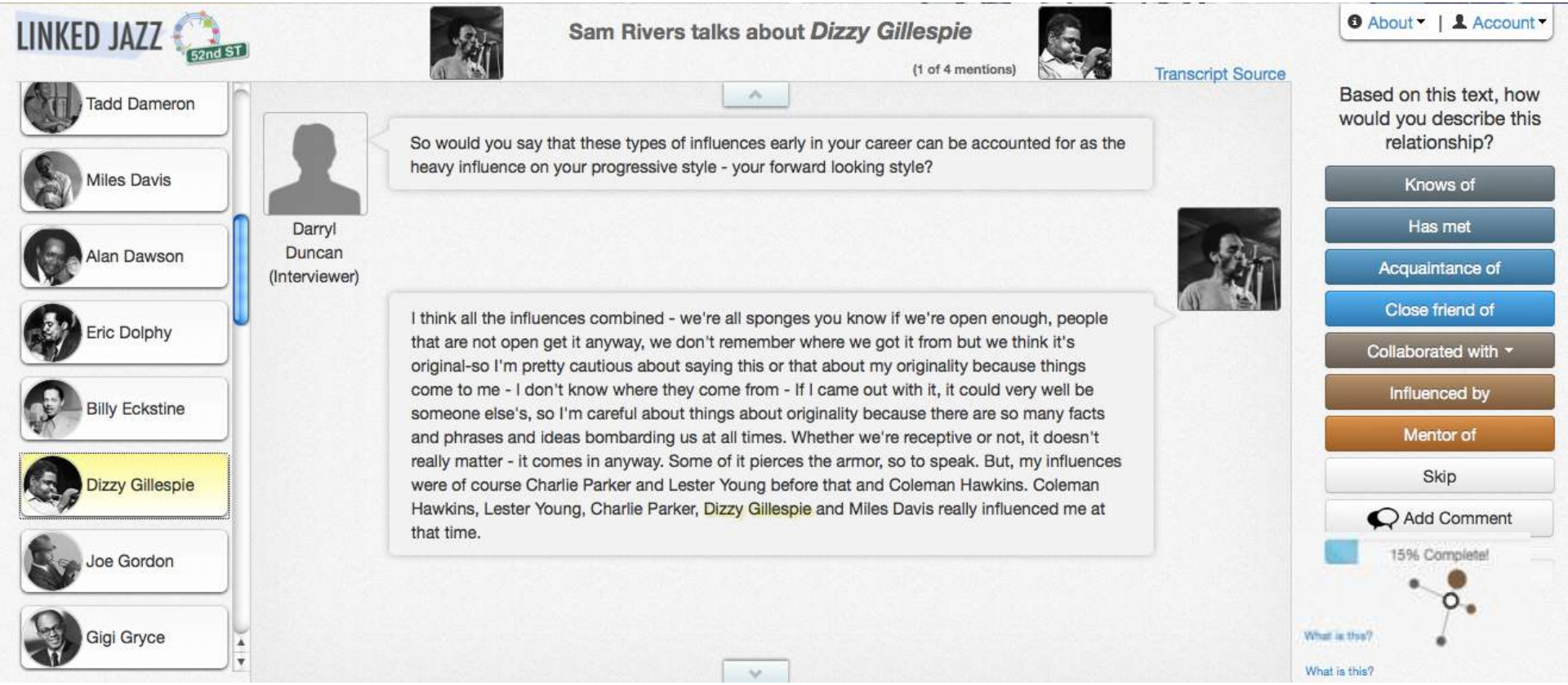
Core set of classes and properties for “person” entity



LINKED JAZZ

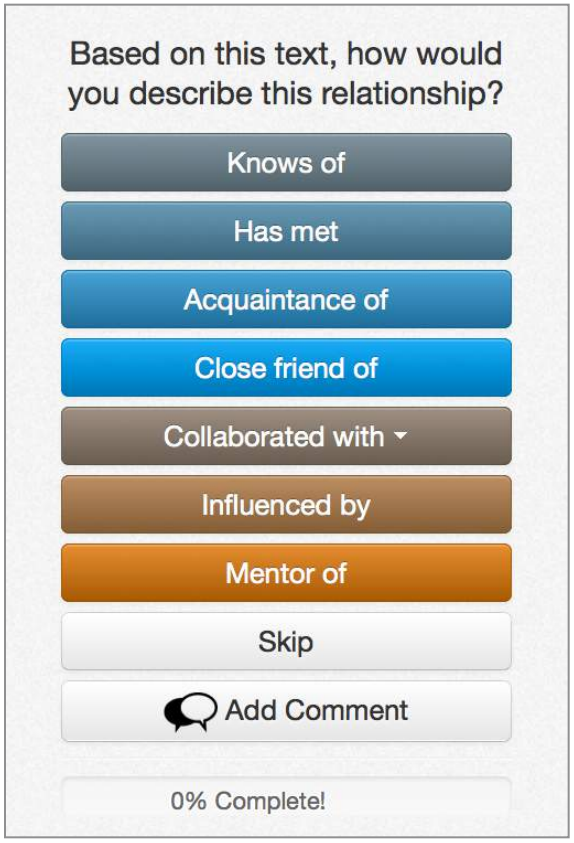

http://
linkedjazz.org/
resource/
Sam_Rivers
rel:knowsOf
http://
linkedjazz.org/
resource/
Miles_Davis
rel:knowsOf
http://
linkedjazz.org/
resource/
Coleman_Hawki
ns
rel:knowsOf
http://
linkedjazz.org/
resource/
Charlie_Parker
rel:knowsOf
http://
linkedjazz.org/
resource/
Dizzie_Gillespie

52nd Street Crowdsourcing Tool



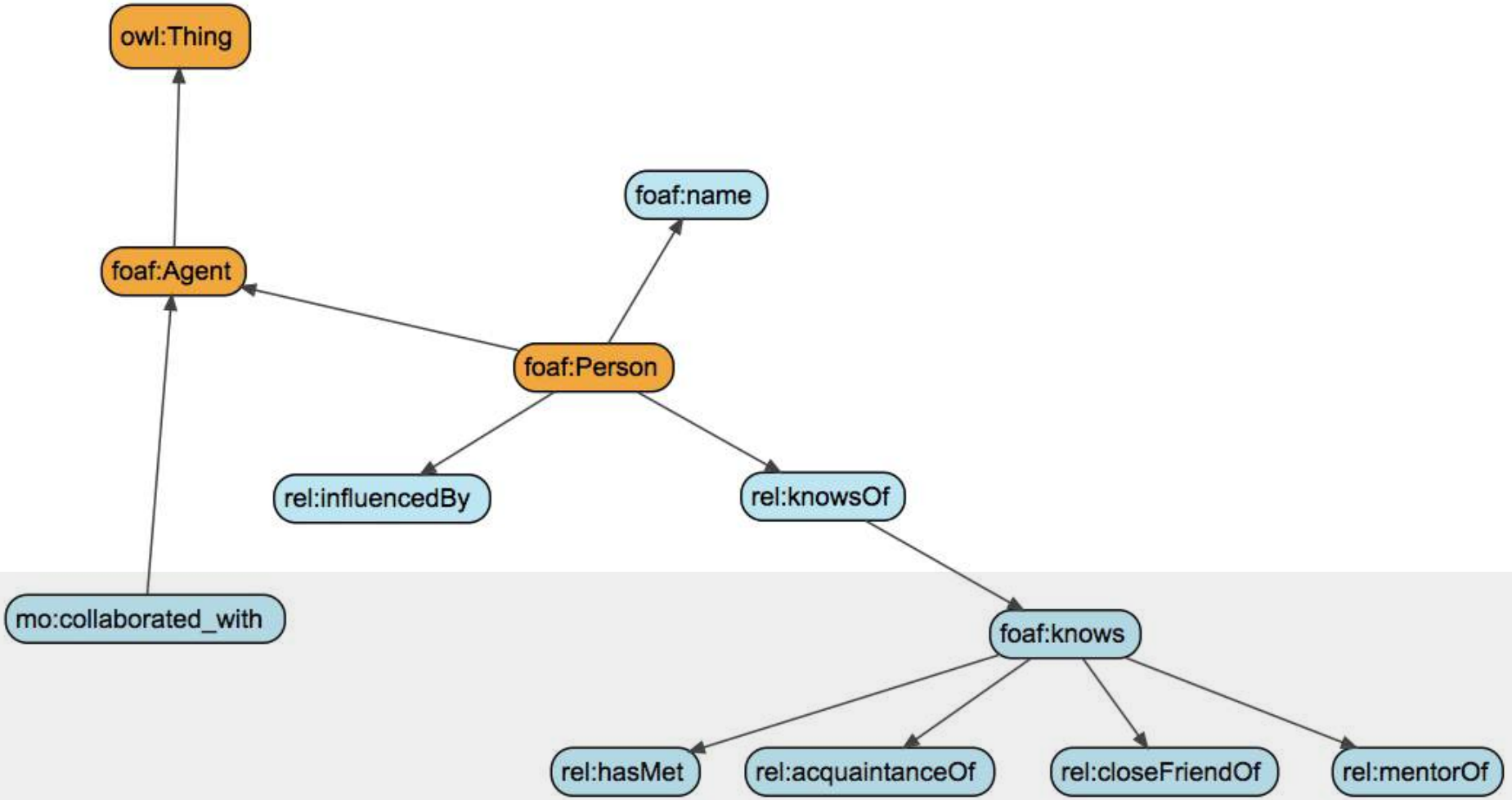
Modeling

Linked Jazz 52nd Street Relationships



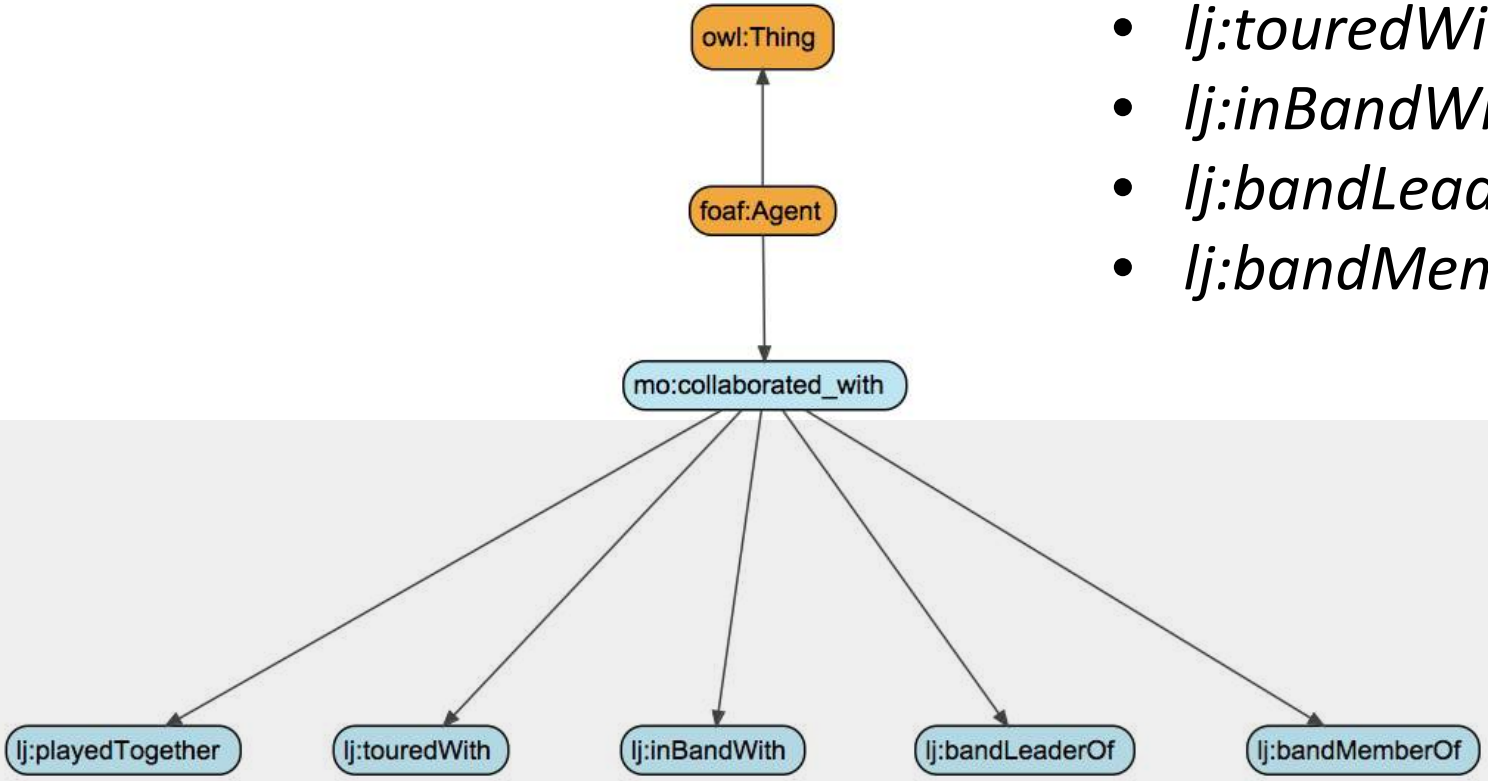
LINKED JAZZ

Modeling



Modeling

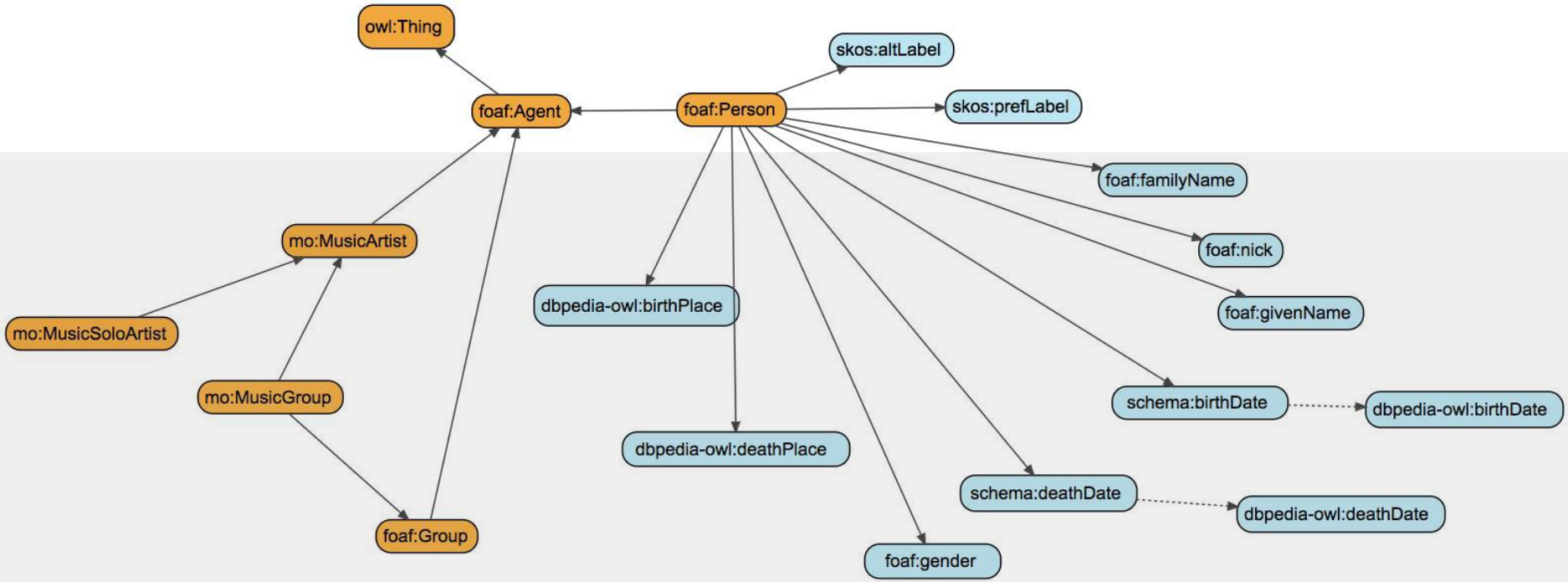
Linked Jazz Minted Predicates



- *lj:playedTogether*
- *lj:touredWith*
- *lj:inBandWith*
- *lj:bandLeaderOf*
- *lj:bandMemberOf*

Modeling

Enriched “person” entity classes and properties



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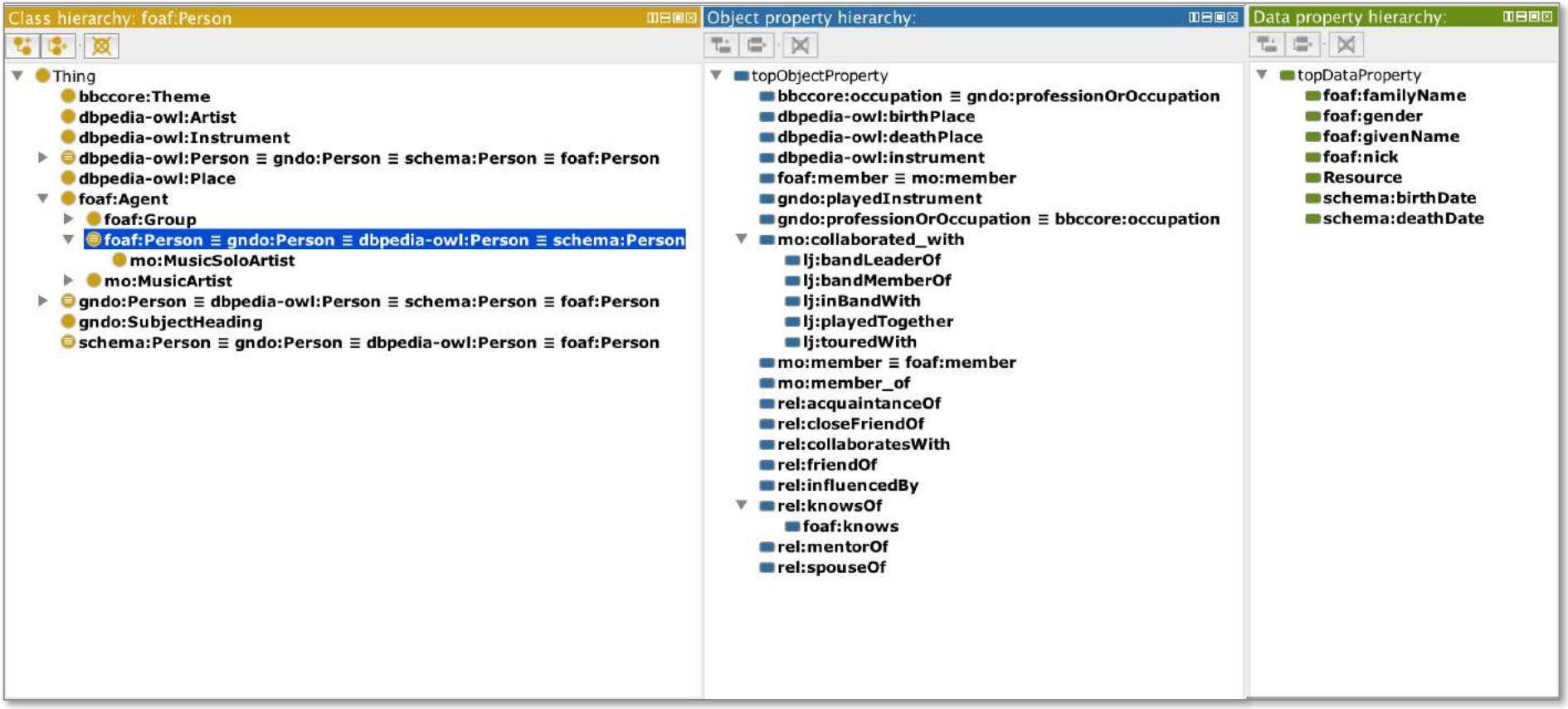
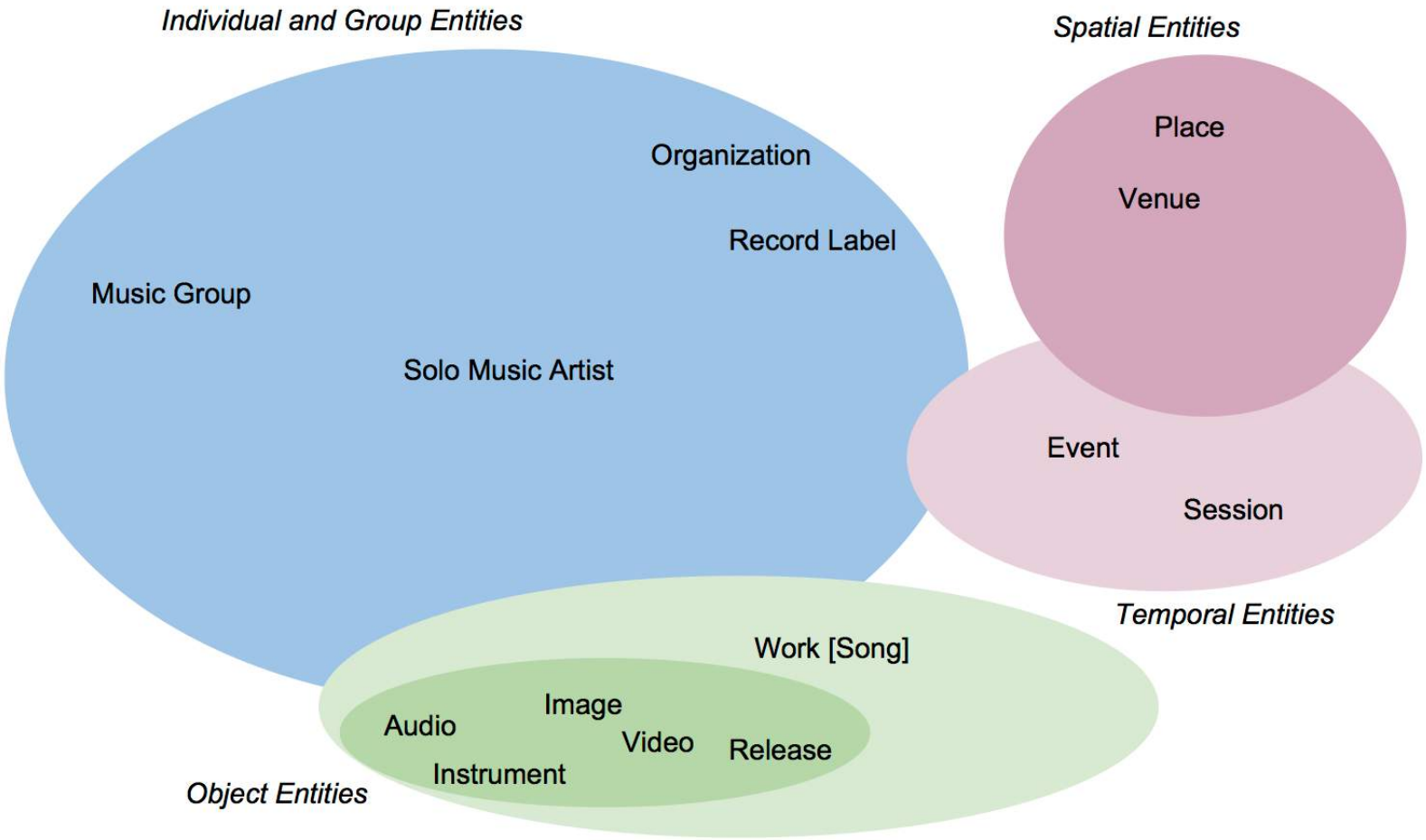
Modeling

Tree view of the expanded model in Protégé



Modeling

Expanding the Ontology



Generation

Data Mapping

	A	B	C	D	E	F	G	H	I
1		**Linked Jazz**		**JDISC**		**MusicBrainz**		**BRIAN discography**	
2				**see http://jdisc.columbia.edu/**		**see http://wiki.musicbrainz.org/**			
3	**Person or Group**				http://jdisc.columbia.edu/person/dizzy-gilles		http://musicbrainz.org/artist/ce8cbced		
4	**ID**								
5	**Person or Group**	foaf:Person							
6	**Name: Last First**						Sort Name		[nameIdx]
7	**Name: Last**	foaf:familyName			Last name				Last name [lName]
8	**Name: First**	foaf:givenName			First Name				First name [fName]
9	**Name: Full**	foaf:name			title		Name		[fullName]
10	**Name: Alt**				alternate name		Alias		
11	**Name: Suffix**								
12	**URI**								VIAF [cVIAF_Id]
13									
14									
15									
16	**Gender**				gender		Gender		
17	**Date of Birth**				DOB		Begin date		
18	**Date of Death**				DOB Value 2 (Sometimes this appears to be the death date, other times it is a repeat of the birthday or left null)		End date		
19	**Place Active**				Region (Country or region of country of origin)		Area		
20	**Birthplace**				Birthplace (City and State or Country)		Begin area		
21									
22									
23									
24	**Death place**								
25									
26									
27									
28	**Ethnicity**				Ethnicity				
29	**Instrument**				Skills/Instrument				Skill [nAxPtr]
30	**Band or group**								
31									

Linking

owl:sameAs

```
<http://linkedjazz.org/resource/Sam_Rivers>
<owl:sameAs>
<http://dbpedia.org/resource/Sam_Rivers>
<owl:sameAs>
<http://viaf.org/viaf/164803380/>
<owl:sameAs>
<https://musicbrainz.org/artist/f86342be-eef7-445b-
90c9-250bdf3f0b3b>
```

Linking

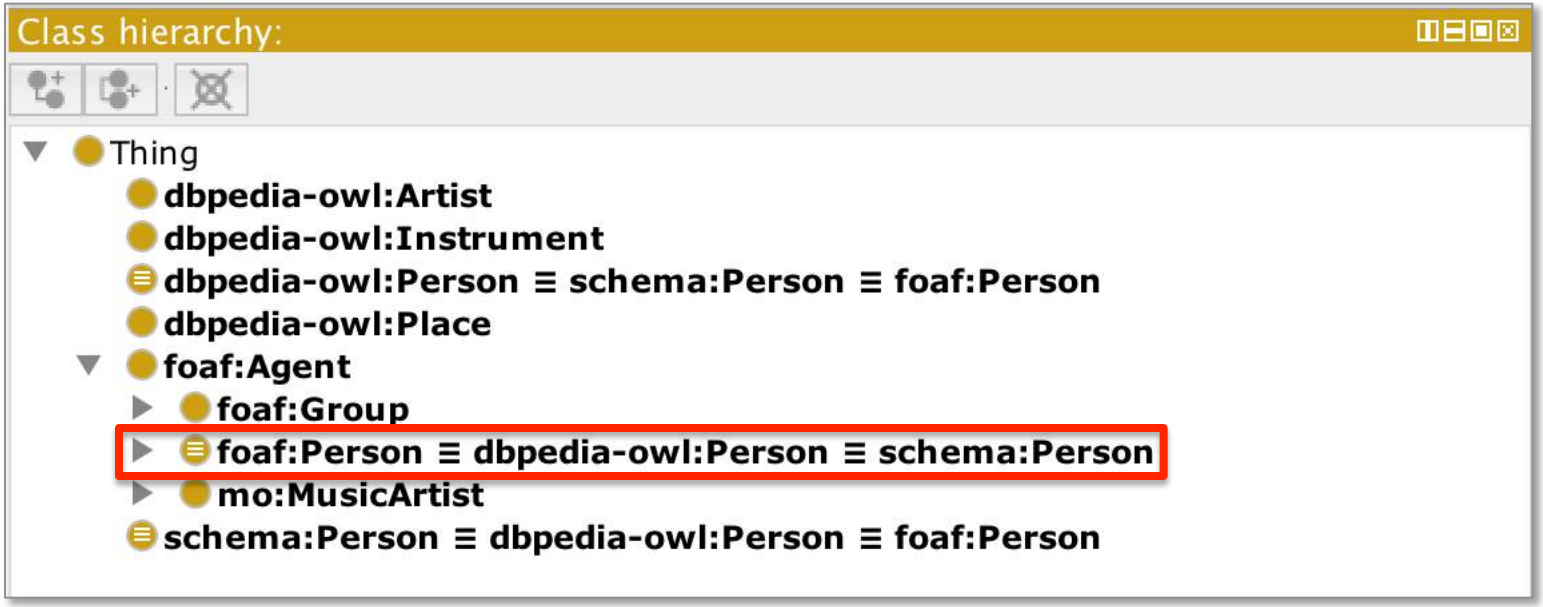
owl:sameAs

```
<http://linkedjazz.org/resource/Sam_Rivers>
<owl:sameAs>
<http://dbpedia.org/resource/Sam_Rivers>
<owl:sameAs>
<http://viaf.org/viaf/164803380/>
<owl:sameAs>
<https://musicbrainz.org/artist/f86342be-
eef7-445b-
90c9-250bdf3f0b3b>
```

Linking

Owl:equivalentClass

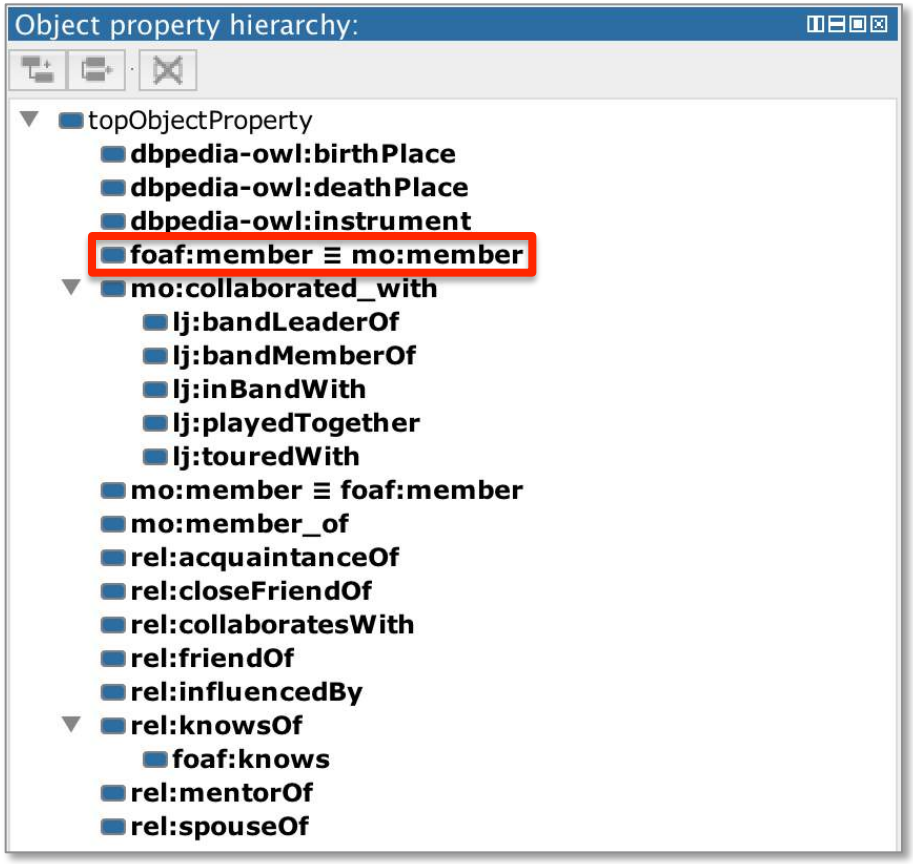
```
<http://xmlns.com/foaf/spec/#term_Person>
<owl:equivalentClass>
<http://schema.org/Person>
<owl:equivalentClass>
<http://dbpedia.org/ontology/Person>
```



Linking

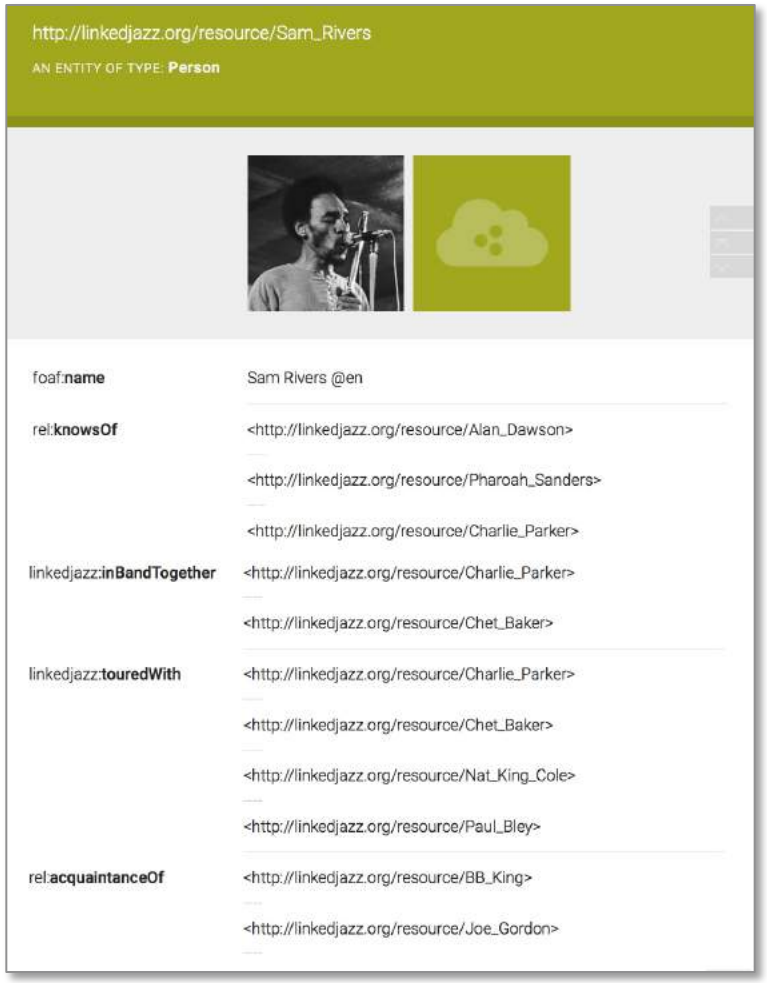
owl:equivalentProperty

```
<http://xmlns.com/foaf/
spec/#term_member>
<owl:equivalentProperty>
<http://purl.org/
ontology/mo/member>
```



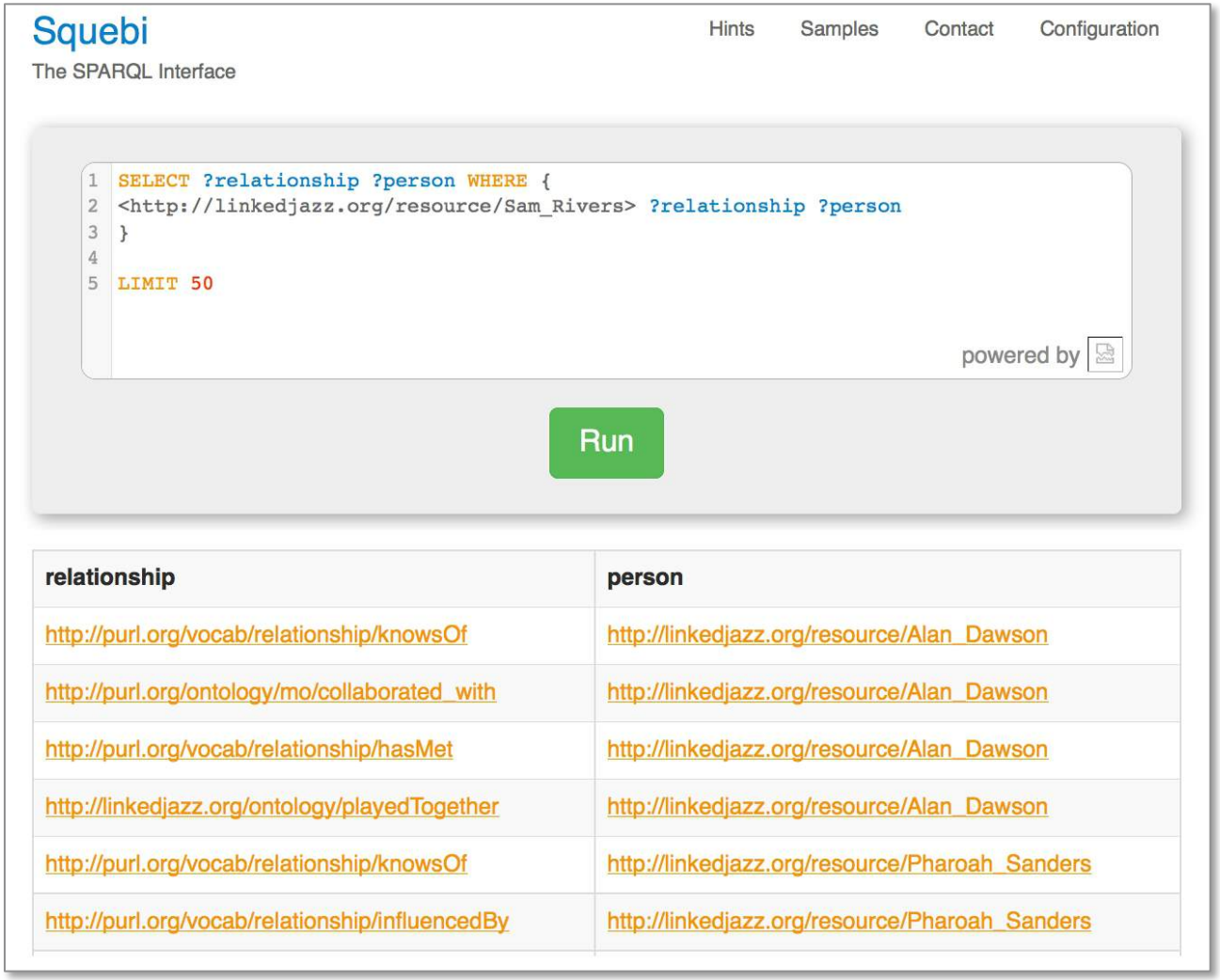
Publication

LodView page for Sam Rivers



Exploitation

SPARQL Query to return Sam River's relationships



Squebi

The SPARQL Interface

Hints Samples Contact Configuration

```
1 SELECT ?relationship ?person WHERE {
2 <http://linkedjazz.org/resource/Sam_Rivers> ?relationship ?person
3 }
4
5 LIMIT 50
```

powered by

Run

relationship	person
http://purl.org/vocab/relationship/knowsOf	http://linkedjazz.org/resource/Alan_Dawson
http://purl.org/ontology/mo/collaborated_with	http://linkedjazz.org/resource/Alan_Dawson
http://purl.org/vocab/relationship/hasMet	http://linkedjazz.org/resource/Alan_Dawson
http://linkedjazz.org/ontology/playedTogether	http://linkedjazz.org/resource/Alan_Dawson
http://purl.org/vocab/relationship/knowsOf	http://linkedjazz.org/resource/Pharoah_Sanders
http://purl.org/vocab/relationship/influencedBy	http://linkedjazz.org/resource/Pharoah_Sanders

LINKED JAZZ

Traditional vs. LOD Ontologies

- Specification
- Modeling
- Generation

- Exploitation

- Structure can be complex with strict logical formalisms
- Terms created to capture entire domain of interest
- Difficult to reuse

- Specification
- Modeling
- Generation
- **Linking**
- **Publication**
- Exploitation

- Lightweight, open structure
- Built from the bottom up with extensions and adjustments
- Easy reuse of terms through mixing and mapping

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Thank you

Questions or comments?

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Find us at:

linkedjazz.org