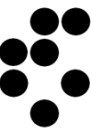




APPLYING NLP FOR BUILDING DOMAIN ONTOLOGY: FASHION COLLECTION

Inna Novalija, Gregor Leban
Artificial Intelligence Laboratory
Jožef Stefan Institute





www.davidbowie.com

Introduction

- **Fashion** is often at the forefront of technology usage (Pearson, 2005). Semantic technologies are just starting to interact with fashion domain.
- **The approach** to developing a fashion domain ontology based on
 - inputs from fashion **experts**,
 - natural language processing (**NLP**) methods.
- **The aim** of this work - to create **supportive mechanisms and tools**, contributing to the improvement of information analysis and sharing processes both on the production and consumption sides of fashion industry.
- **The Development** of fashion ontology is meant
 - to provide advanced **search** functionalities for fashion related content,
 - to **track** what is going on in the fashion world,
 - to show **fashion entities related** to each other.



APPROACH TO DOMAIN ONTOLOGY DEVELOPMENT

The approach consists of the **phases** described below:

- **Collection and definition** of concept seeds.
- **Mapping** seeds to **Wikipedia** and extending the ontology with relevant related concepts.
- **Definition of relationships** between concepts.
- Ontology **refinement**.



Concept Extraction

Input from **Fashion experts**:

Table 1: Fashion Seeds

Seeds by Classes	Number of Entities
Designer	650
Model	448
Clothing term	59
Trend	41
Season	76
Celebrity	383

Table 2: Examples of Fashion Seeds

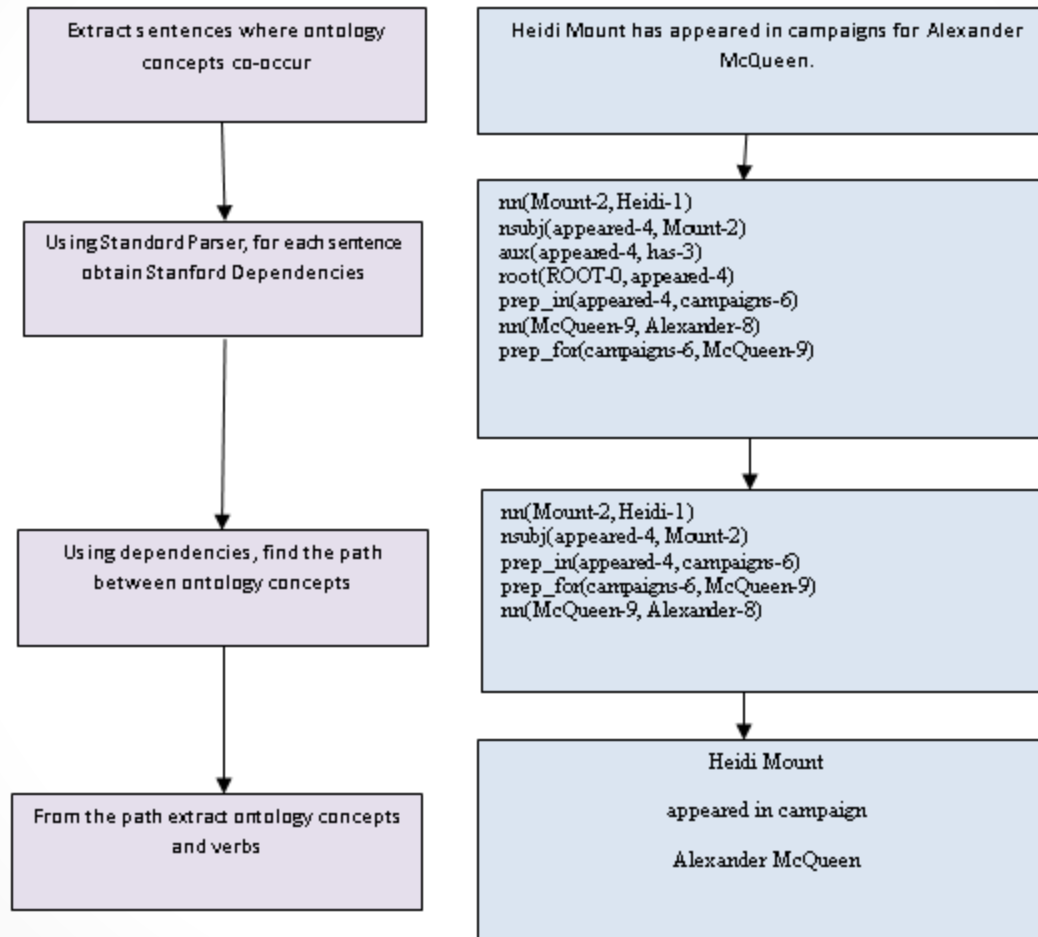
Class	Example
Designer	Alexander McQueen
Model	Ava Smith
Clothing term	Hoodie
Trend	Safari
Season	Fall 2011 Womenswear
Celebrity	Penélope Cruz

Mapping concept seeds to **Wikipedia** articles titles:

- textual description for concept,
- structured information, such as Yago, Freebase and DBpedia inputs.



Relations Extraction



Fashion Ontology

The **current version** of the generated ontology contains around 15.000 concepts and is published in the Resource Description Framework (RDF) format.

Example 1: RDF Representation for Fashion Entity “Heather Marks”

```
<rdf:Description rdf:about="http://ailab.ijs.si/fashion/resource/35481">
  <rdfs:label>Heather Marks</rdfs:label>
  <rdf:type rdf:resource="http://ailab.ijs.si/fashion/upperclass/Model"/>
  <rdf:type rdf:resource="http://dbpedia.org/ontology/Person"/>
  <rdf:type rdf:resource="http://dbpedia.org/ontology/Model"/>
  <rdf:type rdf:resource="http://dbpedia.org/class/yago/LivingPeople"/>
  <rdf:type rdf:resource="http://dbpedia.org/class/yago/CanadianFemaleModels"/>
  <rdf:type rdf:resource="http://dbpedia.org/class/yago/PeopleFromGreenwichVillage,NewYork"/>
  <ailab:linksTo rdf:resource="http://ailab.ijs.si/fashion/resource/5538"/>
  <ailab:linksTo rdf:resource="http://ailab.ijs.si/fashion/resource/49678"/>
  <ailab:linksTo rdf:resource="http://ailab.ijs.si/fashion/resource/35002"/>
  <ailab:linksTo rdf:resource="http://ailab.ijs.si/fashion/resource/14130"/>
  <ailab:linksTo rdf:resource="http://ailab.ijs.si/fashion/resource/11294"/>
  <ailab:linksTo rdf:resource="http://ailab.ijs.si/fashion/resource/1906"/>
  <ailab:linksTo rdf:resource="http://ailab.ijs.si/fashion/resource/18121"/>
  <ailab:linksTo rdf:resource="http://ailab.ijs.si/fashion/resource/35481"/>
</rdf:Description>
```





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Conclusion

- In this paper we presented **an approach to developing a fashion domain ontology** based on domain experts input and natural language processing methods.
- The **future work** will include the **improvements of relation extraction and ontology refinement** methods, as well as **creating semantically grounded applications** in fashion domain.



Questions?



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