

Fashion Ontology

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Abstract:

A growing number of people are interested in fashion these days. With the quick rise in living standards, people's passion grew for fashion related things. But due to the overflow of fashion apparels presented to users along its accessories, footwear, headwear and as well as cosmetic products on various web sites, customers are faced with the problem of choosing a particular apparel to purchase, as different variables are considered, such as price, size, color, brand, location, weather, culture etc. Hence, this ontology is aimed at building an fashion ontology framework that will identify the fashion domains and all their classes and attributes. This paper discusses the ontology for merging methods to form an integrated platform with shared knowledge of fashion and its related domains. The proposed process model creates an ontological framework of integrated healthcare services, which are firstly defined using ontologies and lately integrated over similarities, differences, dependencies and other semantic relations.

The data is derived from various fashion websites.

Keywords: Semantic Web, Ontology, fashion Ontology, Protégé, OWL, Web Engineering, Web 3.O, Competency Questions, Recommender System, WebVOWL, SPARQL.

Introduction:

Fashion is a form of self-expression and autonomy at a particular period and place and in a specific context of clothing, footwear, lifestyle, accessories, makeup, and hairstyle and body posture. The term implies a look defined by the fashion industry as that which is trending. Everything that is considered fashion is available and popularized by the fashion system. The fashion domain is a multi-faceted one, occupying a significant position in the global economy and involves a large industrial chain, including garment design, production and sales. The fashion domain has several properties and behaves differently from most other domains. The

domain is characterized by concepts related to clothes, popularity, time and cultural grouping. Personalization in the fashion domain is the tool to achieve adoption, and as such, it is considered important and adds value to the services provided.

The main driver of fashion is the need for belonging and for individuals to share a common thought or opinion. Customers are continuously faced with the challenging problem of choosing the right fashion apparel, shoes headwear and cosmetics. Overall, web ontology is used to improve user experience by providing and suggesting them all the fashion related things and products in an organized way which reduces the complexity of web data.

Fashion ontology is a tool that contains the organized and structured descriptors that define your products and your shoppers, in the terms that are relevant for your organization and your shoppers.

An ontology includes a representation, formal naming and definition of the categories, properties and relations between the concepts, data and entities that substantiate one, many or all domains of discourse. Every field creates ontologies to limit complexity and organize information into data and knowledge. As new ontologies are made, their use hopefully improves problem solving within that domain.

Definition of Terms:

1. **Ontology:** consists of a set of concepts, axioms and relationships that describes a domain of interest in computer science.
2. **OWL:** means Ontology Web Language.
3. **VOWL:** means Visual Notation for OWL Ontologies. It is a plugin that is used to visualize the ontology.
4. **OWL-DL:** means Ontology Web Language Description Language.
5. **Protégé:** A free ontology development environment or tool.
6. **Reasoner:** A system containing set of axioms denoting facts and rules for reasoning and inferences.

Problem Statement:

Due to the overflow of fashion apparels presented to users along its accessories, footwear, headwear and as well as cosmetics products on various e-commerce sites, customers are faced with the problem of choosing a particular apparel to purchase, as different variables are considered, such as price, size, color, brand, location, weather, culture etc. This problem makes it difficult for a user to browse a catalogue, thereby making it seem confusing. They don't understand which specific products or apparels are for which gender as there is a lot of complex web data which increases the complexity. In addition, it is difficult for fashion e-commerce merchants to study the real-time demand of consumers, as there is not enough information on user preferences or taste. Herein, there is not enough

connection between consumer information and these merchants. Hence, this ontology is aimed at building a fashion ontology framework that will identify the fashion domains and all their classes and attributes. The study targets specific fashion apparels, accessories footwear and headwear divided into gender specific categories. The use of ontologies makes reasoning with the domain knowledge necessary due to these categorizations.

Fashion Ontology:

My ontology is fashion ontology. Basically I have connected my ontology with fashionpedia. In this ontology, they took 27 Apparel items and use AI for image recognition and to find fine grained attributes or parts of those apparel using different tools. What I am doing in my Ontology is i am making different sections of Apparel and dividing them on gender base and making categories for clothing and other fashion related items. In addition I have also added wide range of cosmetics and accessories which is not present in any other fashion related ontologies. I am also forming subcategories of each fashion related area and then further subdividing them on the basis of gender, which helps us to distinguish fashion for men, women and children.

My ontology gives its users answers about the fashion domain and what comes under fashion for men, women and children. It answers questions about how many type of clothing is there for each gender and how many expended options are there in each of those categories, same goes in case of cosmetics, accessories and shoes, and it provides details about what each of these categories contains for each gender

and what other further options are there in each sub category of each area.

Fashion Ontology ORSD:

1. Purpose:

The purpose of building Ontology is to provide a knowledge model of what comes under fashion.

2. Scope:

The Ontology focuses of areas that come under the term fashion and their further subcategorization.

3. Implement language:

The Ontology has to be implemented in OWL Language.

4. Intended End-Users:

- User 01: Teenagers
- User 02: Fashion blogger
- User 03: Celebrities
- User 04: General Public
- User 05: Fashion Designers

5. Intended Uses

- Use 01. Provide Information about fashion variety
- Use 02: provide categories of Fashion and their subdivisions
- Use 03. Provides up to date knowledge about fashion and trends
- Use 04. Provide cosmetics information to users.
- Use 05. Provide knowledge about shoes and sportswear.

6. Ontology Requirements

a) Non-Functional Requirements

- NFR1. The Ontology must support English Language

- NFR2. The Ontology must provide Fashion information and what comes within clothing, accessories, cosmetics and shoes variety.

b) Functional Requirements

CQG1: Fashion

- CQ1.1: What comes under fashion domain?
- CQ 1.2: Which things are involved in fashion?
- CQ1.3: What are the categories under clothing domain?
- CQ 1.4: What things come under cosmetics?
- CQ 1.5: What things come under accessories?
- CQ 1.6: What variety comes under shoes collection?
- CQ 1.7: How many gender categories are there in clothing?
- CQ 1.8: How many gender categories are there in accessories?
- CQ 1.9: How many gender categories are there in shoes?
- CQ1.10: How many gender categories are there in cosmetics?

CQG2: Male:

- CQ2.1: What clothing items are there?
- CQ2.2: How many clothing items are there for men?
- CQ2.3: what Pants variety is there?
- CQ2.4: What are the top varieties available?
- CQ2.5: How many accessories items are there for men?

- CQ2.6: What are the shoe varieties for men?
- CQ2.7: What cosmetics are there for men?
- CQ2.8: What brands are famous for watches?

CQG3: Female:

- CQ3.1: What clothing variety is available in female clothing?
- CQ3.2: How many shoe varieties are there in fashion?
- CQ 3.2: how many total type of female clothing is there?
- CQ 3.3: how much heel variety is there? What types of heels are there?
- CQ 3.4: What female cosmetics are there?
- CQ 3.5: How many / what cosmetics items are there?
- CQ 3.6: What type of wedding apparel is there?
- CQ 3.7: What types of earrings are available?

CQG4: Fashion Designers

- CQ4.1: What type of bridal wears are there for female?
- CQ 4.2: How many / what types of tops are there?
- CQ 4.3: How many / what types of bottoms are there?
- CQ 4.4: How many/ what types of one pieces are there?
- CQ 4.5: How many / what types of Heels are there?

- CQ 4.6: What brands watches for men are trending?
- CQ 4.7: how many type of female accessories are there?
- CQ 4.8: How many / what are the type of bags for female?
- CQ 4.9: How many type of rings are there for females?

CQG5: Children

- CQ5.1: How many types of children Apparel is there?
- CQ5.2: How many clothing choices are available for children?
- CQ5.3: What clothing choices are available for children?
- CQ5.4: How many types of children shoes are there?
- CQ5.4: What type of children shoes are there?
- CQ5.5: Are there any cosmetics available for children?

In given below figure main classes of given ontology are mentioned

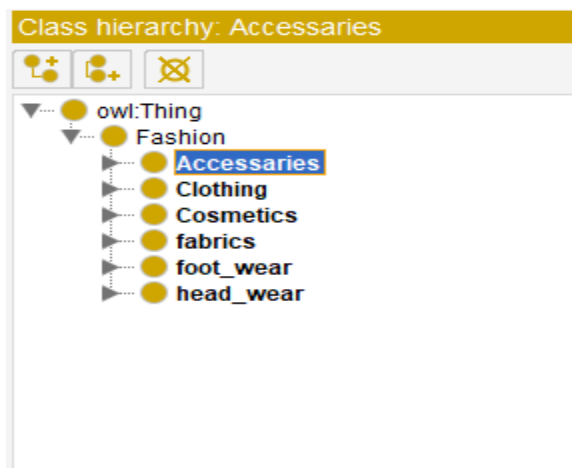


Figure 1: classes of Fashion Ontology

In given below figure object properties of given ontology are mentioned

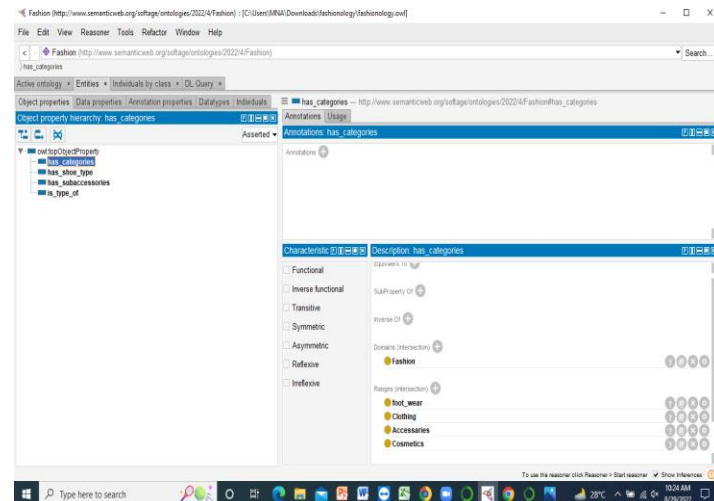
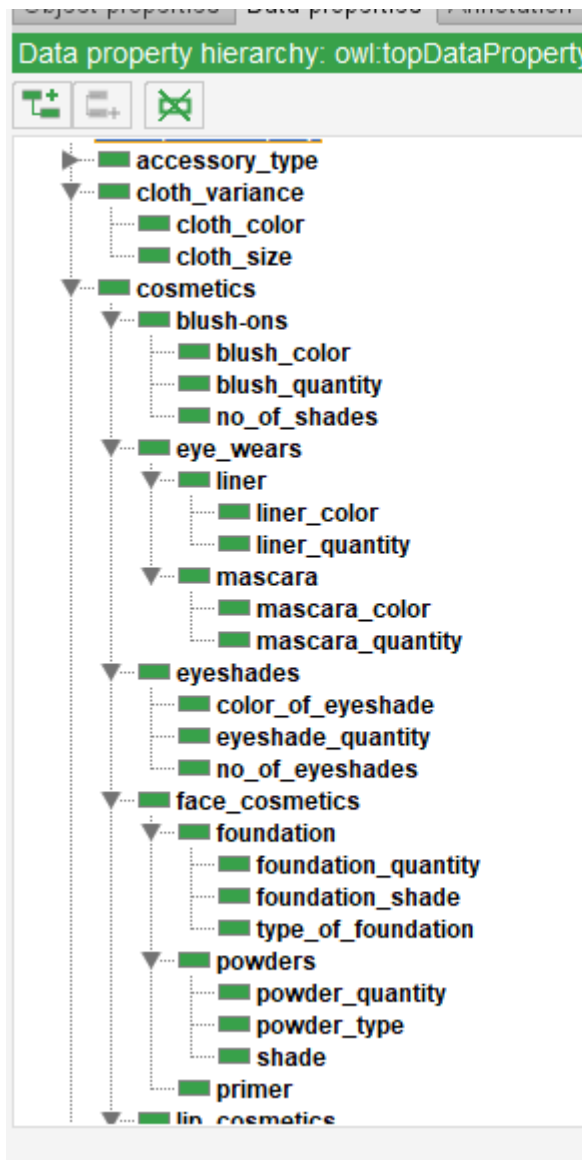


Figure 2: Object properties Fashion Ontology

In given below figure data properties of given ontology are mentioned



In figure 3: data properties of fashion ontology

The visual representation of the ontology is given below. The figure shows WebVOWL visual representation of different subclasses of six main classes.

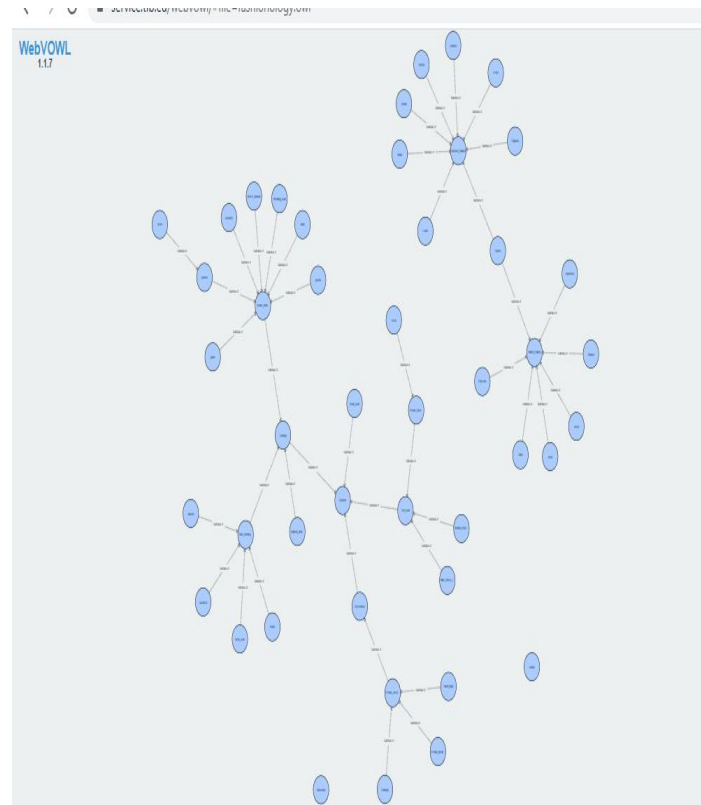


Figure 4: visual representation of fashion ontology

Conclusion:

In this paper, a fashion ontology is developed in order to reduce the complexity of the web data for users. This ontology is aimed at building an fashion ontology framework that will identify the fashion domains and all their classes and attributes. The study targets specific fashion apparels, accessories footwear and headwear divided into gender specific categories. The use of ontologies makes reasoning with the domain knowledge necessary due to these categorizations.

