



BISTIRIS

USAGE BOOKLET



Finanziato
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NextGenerationEU



Ministero
dell'Università
e della Ricerca



Italiadomani
PIANO NAZIONALE
DI RIPRESA E RESILIENZA

e.INS Spoke 2

Ecosystem of Innovation for
Next Generation Sardinia



UNISS
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ACCADEMIA
DI BELLE ARTI
Mario Sironi

1. Introduction

This booklet provides a practical guide for using **BISTÌRIS ontology** to model traditional costumes. The goal is to support cultural heritage institutions, researchers, museums, and digital humanities practitioners in adopting a Semantic Web approach for representing, analysing, and preserving intangible cultural heritage.

We offer two versions of the ontology:

1. **BISTÌRIS**: This version is specifically designed for Sardinian traditional costumes. It encodes detailed ethnographic knowledge, including local classifications and specific rules that govern costume construction and usage.
2. **BISTÌRIS *Lite***: A lightweight version intended for application across different cultural contexts. It abstracts from Sardinian-specific details while retaining the universal conceptual relations that underpin traditional attire, enabling reuse for other Mediterranean or European traditions without extensive restructuring.

2. How to use

The examples in this booklet show how BISTÌRIS and its lightweight version, BISTÌRIS *Lite*, can be used to describe traditional garments. By modelling their structure, colours, decorative elements, and layering relations, the ontology offers a way to document different dressing traditions.

The booklet includes:

- a Sardinian costume from Atzara,
- the Greek Presidential Guard uniform,
- a traditional Sicilian women's costume.

These cases demonstrate how the ontology can be adapted to diverse traditions, while also highlighting possible extensions for new domains.



Notation conventions

- Bold + underline → specific garments discussed in the example
- Blue text → insights inferred by the reasoner
- :ClassName → ontology class
- When a prefix is omitted, the default namespace is BISTÌRIS (bst)
- Code-block format → SPARQL examples

3. Ontology Overview

3.1 Core Classes

- `bst:Costume`
- `bst:Garment`, `bst:F-Garment`, `bst:M-Garment`
 - `bst:F-Bodice`, `bst:F-Shirt`, `bst:F-Giubbetto`, `bst:Apron`, `bst:F-Skirt`,
`bst:Headscarf`, `bst:M-Jacket`, `bst:Hose`
- `dbo:Colour`
- `a-dd:TechnicalCharacteristic`
- `crm:E73_InformationObject`
- `schema:Place`

3. Ontology Overview

3.2 Core Properties

• Structural

- `crm:P46i_is_composed_of/crm:P46i_forms_part_of`
- `bst:covers/bst:coveredBy`
- `bst:coversWithTransparency/bst:coveredByTransparency`
- `bst:sewnTogether`

• Source & linking

- `crm:P62i_is_depicted_by`
- `dbo:neighboringMunicipality`

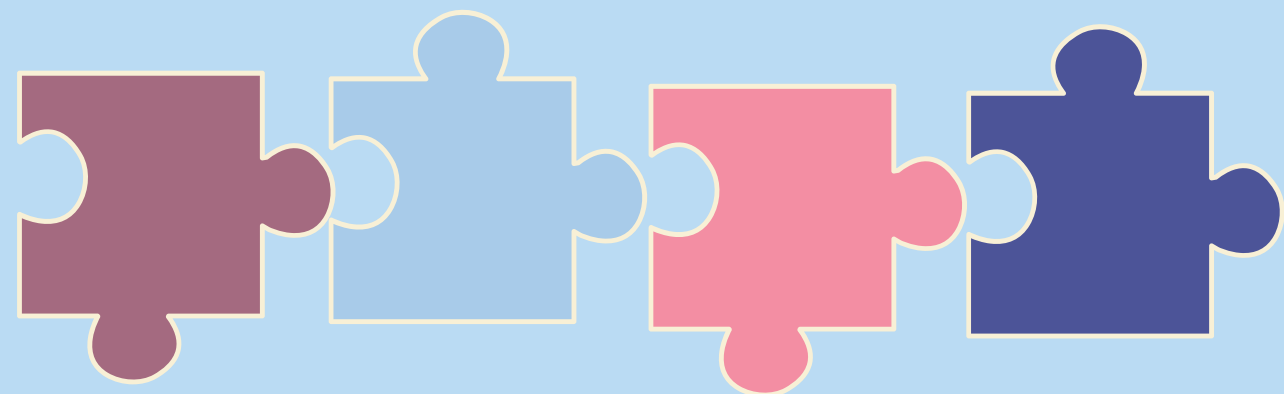
• Visual/Descriptive

- `a-lite:hasColour`
- `bst:coveredColour`
- Boolean features: embroideries, pleated, curly, open_sleeves, etc.
- `bst:intended_use` (daily, festive...)

• Temporal & Geographical

- `schema:dateCreated/datePublished` (EDTF recommended)
- `schema:fromLocation`

4. Workflow for describing a costume



Step 1 - Identify components

List all visible garments and accessories.

Step 2 - Map to ontology classes

Assign each element to the closest class or evaluate whether a refinement is needed.

Step 3 - Describe properties

Include colours, transparent elements, structure, and function.

Step 4 - Document sources

Images, bibliographies, archival metadata.

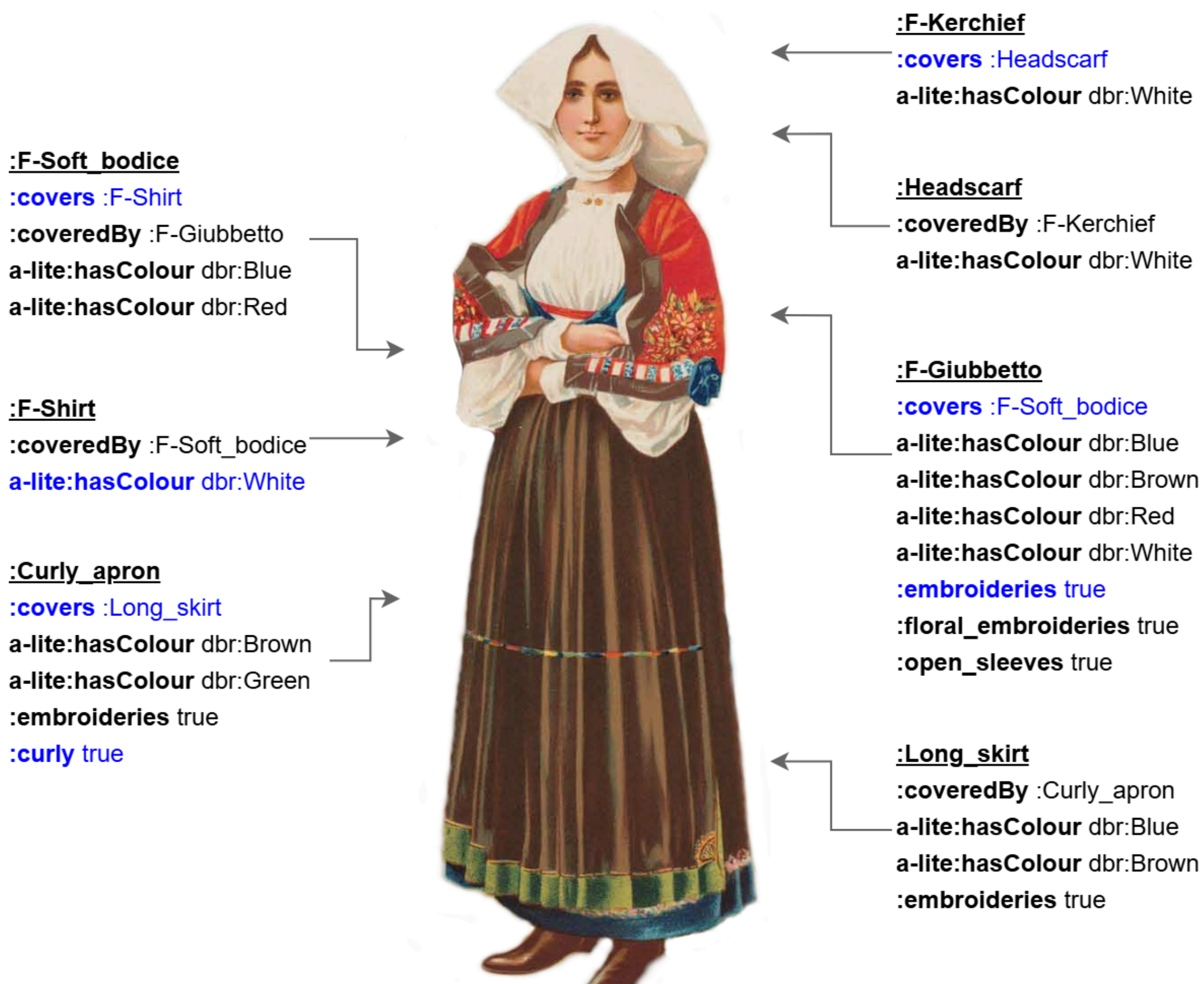
Step 5 - Applying reasoning

Reveal inferred properties, validate consistency, detect stylistic patterns or recurrent motifs.

5. Usage Examples



5.1 Sardinian Example - Atzara Costume

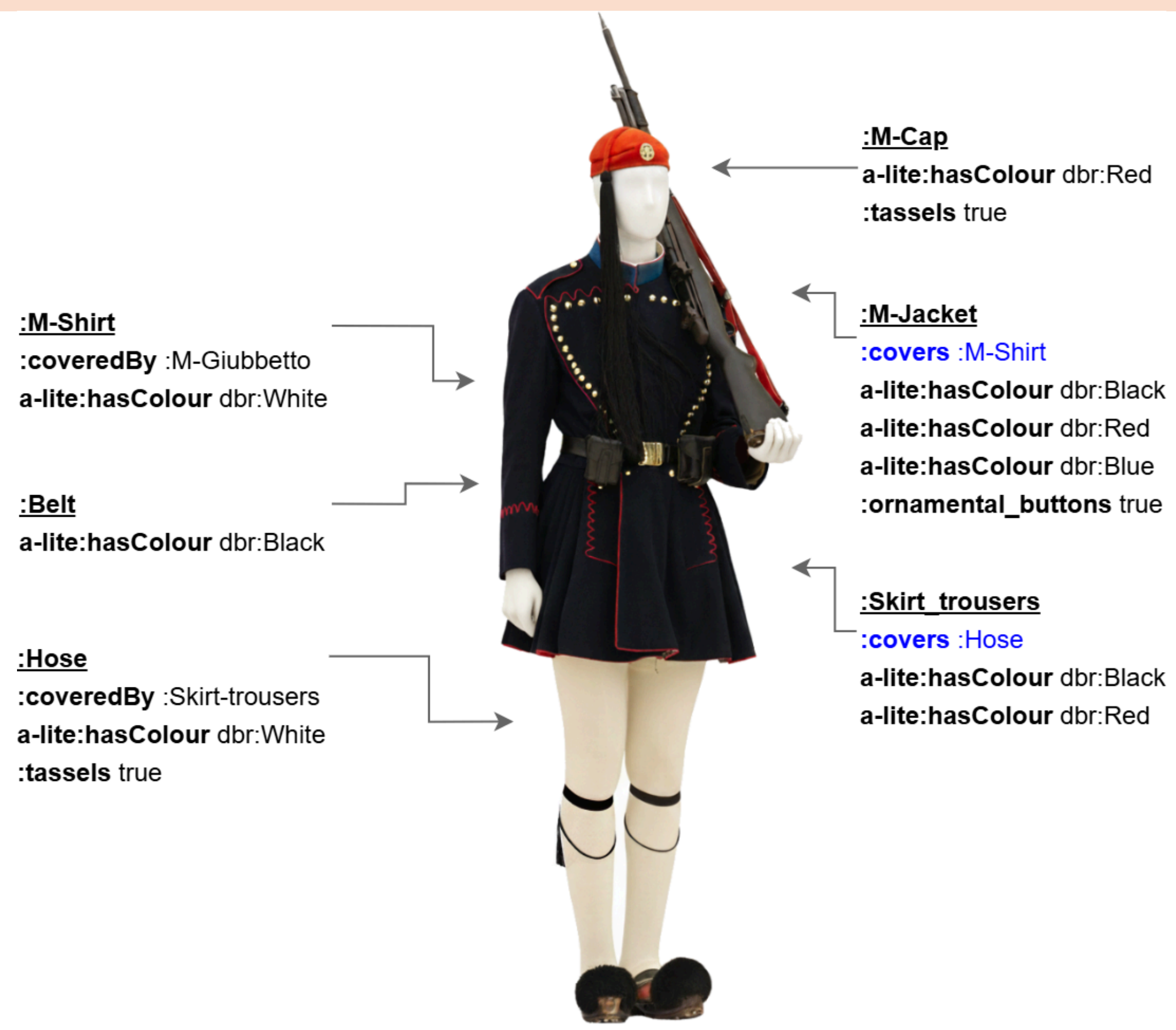


BISTIRIS captures garment layering, visible and hidden colours, decorative features (e.g., embroideries, curly apron edge, open sleeves), and structural relations between the soft bodice, giubbetto, shirt, curly apron, long skirt, and headwear.

- What this example shows:**
- Precise reconstruction of Sardinian garment layering
 - Representation of colour combinations and decoration details
 - Identification of hidden/visible colours through transparency
 - Automatic inference of structural relations

Source: Illustration from Enrico Costa, *Album di costumi sardi*, 1898.

5.2 Greek Presidential Guard Uniform



The uniform of the Greek Presidential Guard has been modelled using BISTIRIS *Lite*.

- The jacket corresponds to the class :M-Jacket, while the trousers are represented by the class :Hose.
- Traditional knee elements, known as *Kaltsodétes* and currently generalised as tassels, could be further refined by introducing a dedicated property, enhancing the expressiveness of the model for military or ceremonial attire.
- Additional features, such as *epaulettes* and a *stand-up collar*, could be incorporated to obtain a more detailed representation of military uniforms.

5.3 Sicilian Traditional Costume

F-Kerchief

a-lite:hasColour dbr:White
a-lite:hasColour dbr:Red
a-lite:hasColour dbr:Green
:floral_embroideries true
:embroideries true

:F-Shirt

:coveredBy :F-Soft_bodice
a-lite:hasColour dbr:White

:F-Skirt

:coveredBy :Apron
a-lite:hasColour dbr:White
a-lite:hasColour dbr:Pink



:F-Soft_bodice

:covers :F-Shirt
a-lite:hasColour dbr:Black

:Apron

a-lite:hasColour dbr:White
a-lite:hasColour dbr:Red
a-lite:hasColour dbr:Green
:covers :Skirt
:floral_embroideries true
:embroideries true
:lace true

The Sicilian female traditional costume has been modelled using BISTIRIS *Lite*.

- The ontology effectively captures common structural components, such as the kerchief, blouse, apron, and skirt.
- Traditional elements like pleated skirts or shirts fastened with a string could be further refined by introducing dedicated subclasses or properties, allowing the model to encode local stylistic nuances.
- Reasoning helps reveal structural similarities—like the recurring layering of shirt and apron—while also distinguishing regional aesthetics, materials, and motif traditions.

SPARQL Example — Garment Types by Location and Transparency

```
PREFIX bst: <https://aimet-lab.github.io/BISTIRIS#>
PREFIX dbo: <http://dbpedia.org/ontology/>
PREFIX owl: <http://www.w3.org/2002/07/owl#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX schema: <https://schema.org/>
```

```
SELECT ?type ?place (COUNT(?garment) AS ?n)
WHERE {
    ?garment bst:coversWithTransparency ?other ;
              a ?type ;
              schema:fromLocation ?place .
    ?place a dbo:Place .

    FILTER(?type != owl:NamedIndividual)

    FILTER NOT EXISTS {
        ?otherType rdfs:subClassOf ?type .
    }
}
GROUP BY ?type ?place
ORDER BY DESC(?n)
```

7. Extending the Ontology

Subclasses are needed when:

- a garment has a distinct structure
- a function is culturally specific
- the garment recurs in multiple examples

New properties are needed when:

- describing fastening techniques
- capturing region-specific ornamentation

Interoperability guidelines:

- Align with AAT, Wikidata
- Keep core classes stable
- Create optional modules for specialised domains

Thank you!



AIMet Lab
Artificial Intelligence and
Formal Methods Lab

References

- [Project Page](#)
- [GitHub Repository](#)
- [Ontology Documentation](#)
- [BISTIRIS](#)
- [BISTIRIS Lite](#)



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