SDI.Next masterclass
Spatial Data on the Web

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W3C Working Group Note

Spatial Data on the Web Best Practices

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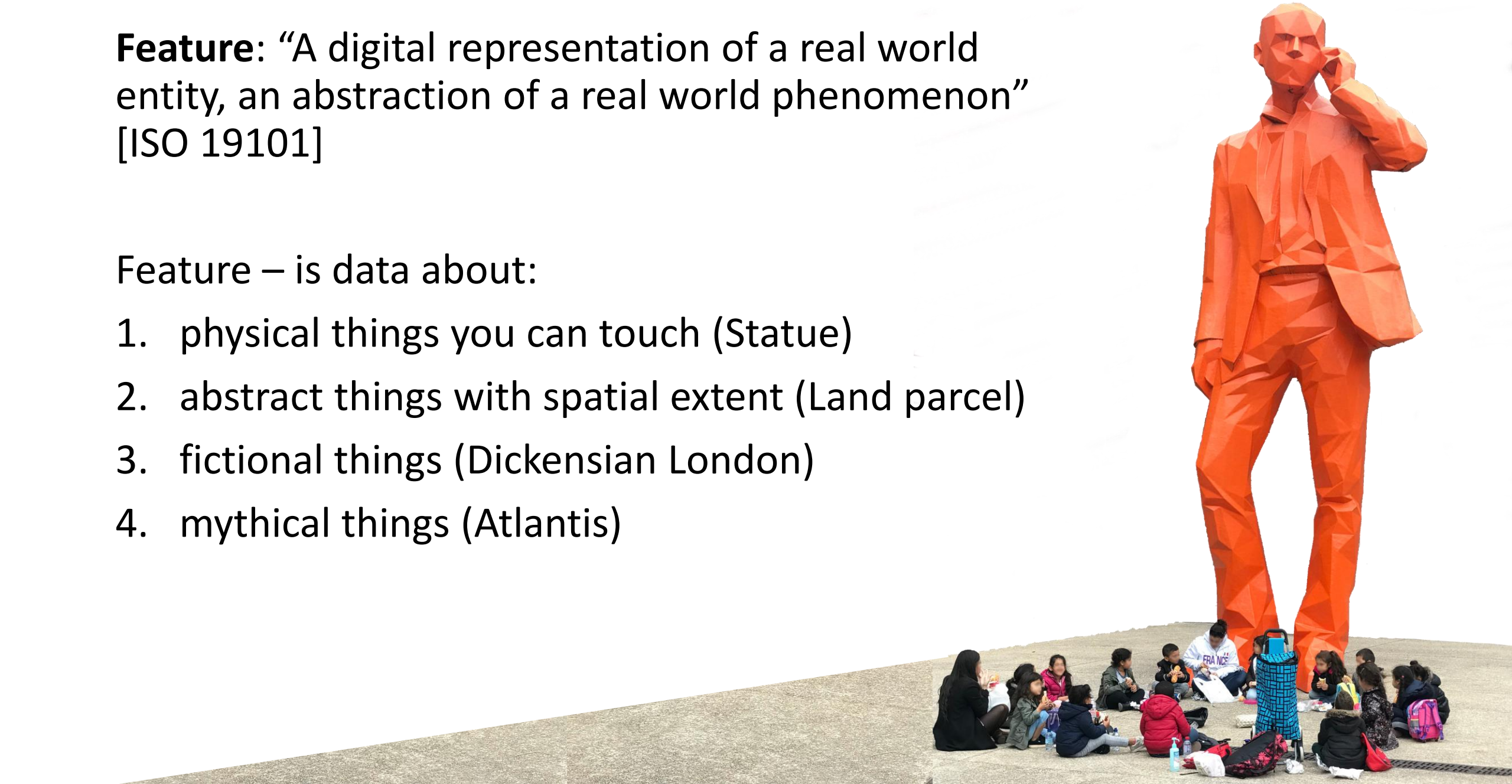
§6. Spatial Things, Features and Geometry

Feature: “A digital representation of a real world entity, an abstraction of a real world phenomenon” [ISO 19101]

Feature – is data about:

1. physical things you can touch (Statue)
2. abstract things with spatial extent (Land parcel)
3. fictional things (Dickensian London)
4. mythical things (Atlantis)



What are ***my*** features? They are the things that ***you*** are describing in your data – whether real or hypothetical.

And in this masterclass, we're talking about a 5 metre tall orange statue of man talking on the telephone …

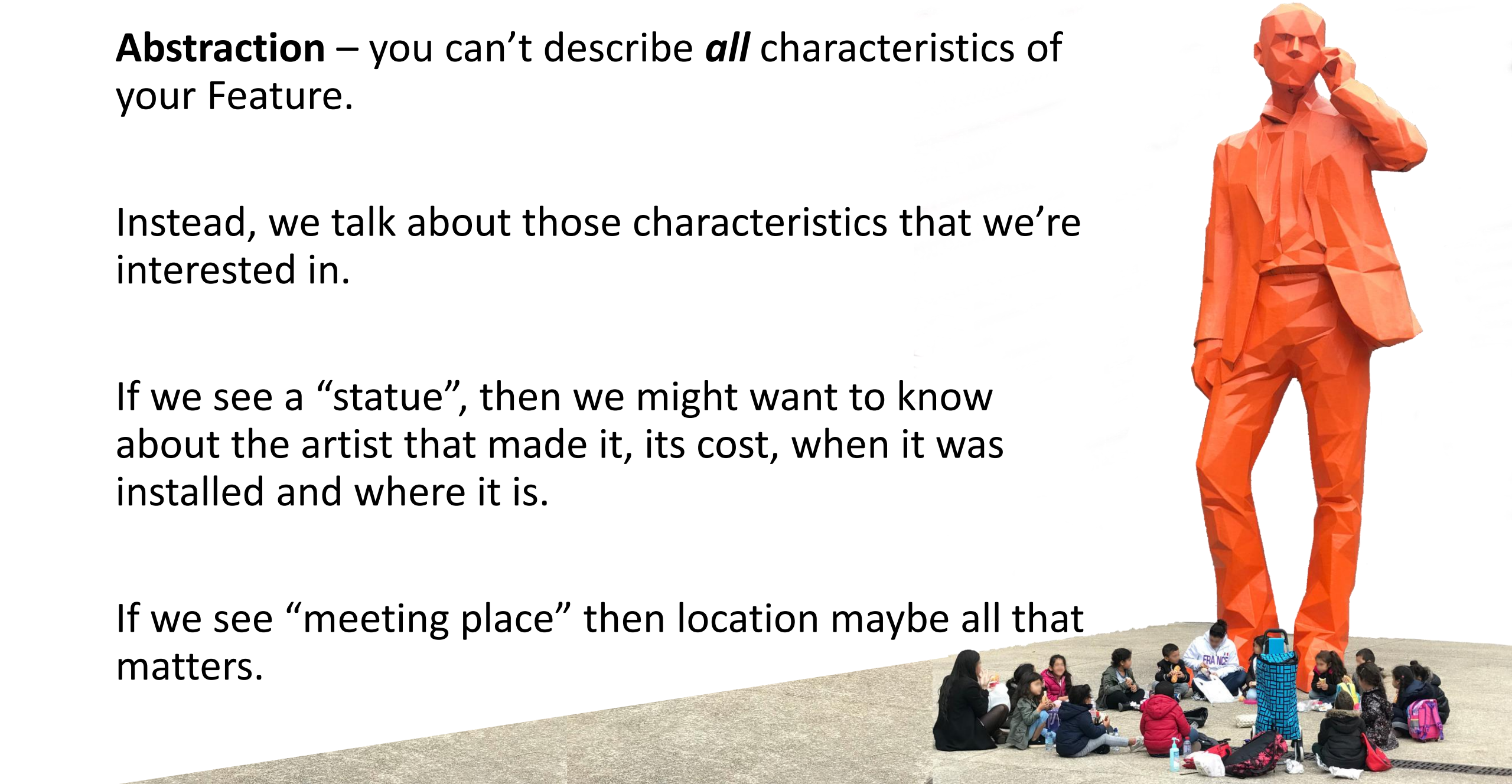
Orange Man at Cité Centre de Congrès de Lyon.

Abstraction – you can't describe ***all*** characteristics of your Feature.

Instead, we talk about those characteristics that we're interested in.

If we see a "statue", then we might want to know about the artist that made it, its cost, when it was installed and where it is.

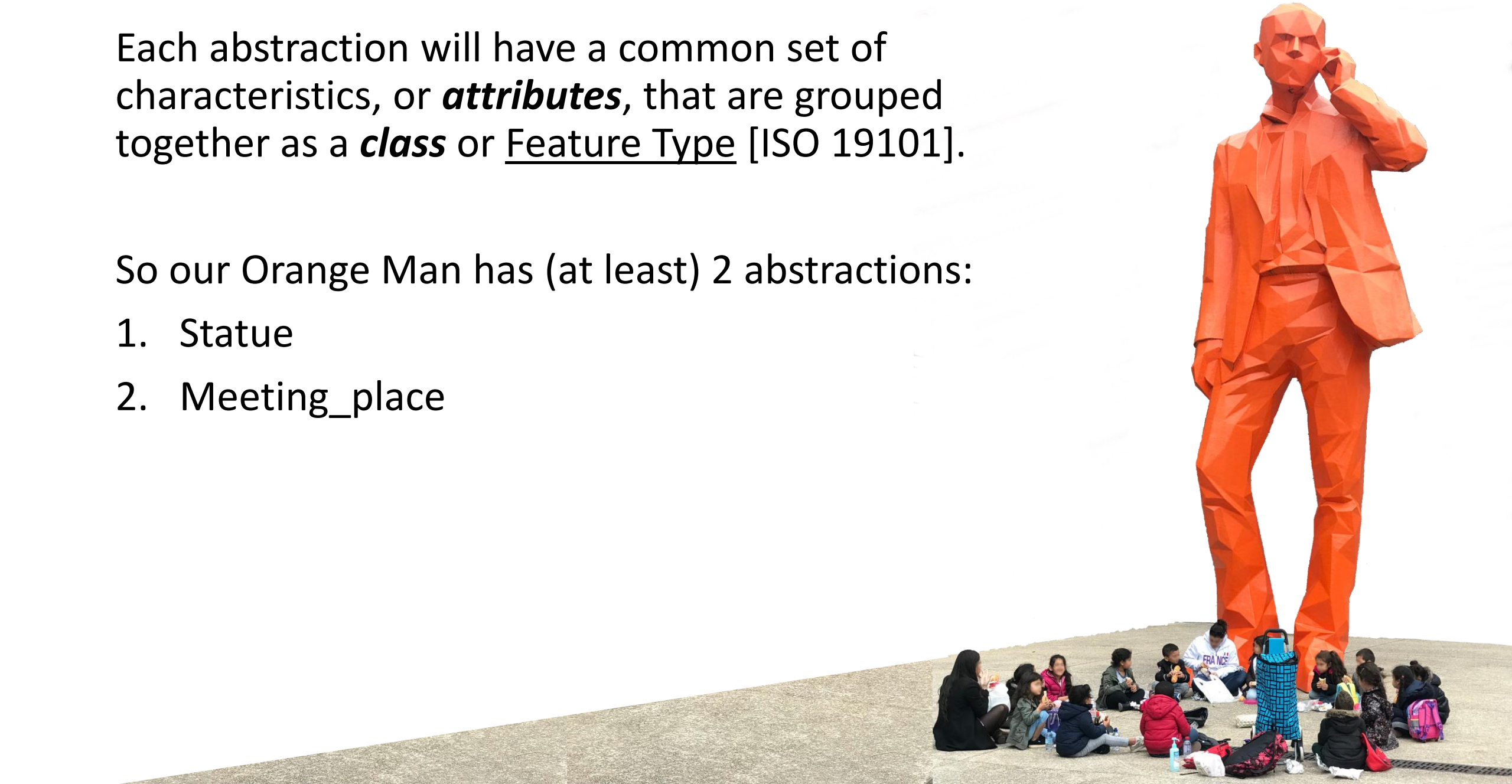
If we see "meeting place" then location maybe all that matters.



Each abstraction will have a common set of characteristics, or ***attributes***, that are grouped together as a ***class*** or Feature Type [ISO 19101].

So our Orange Man has (at least) 2 abstractions:

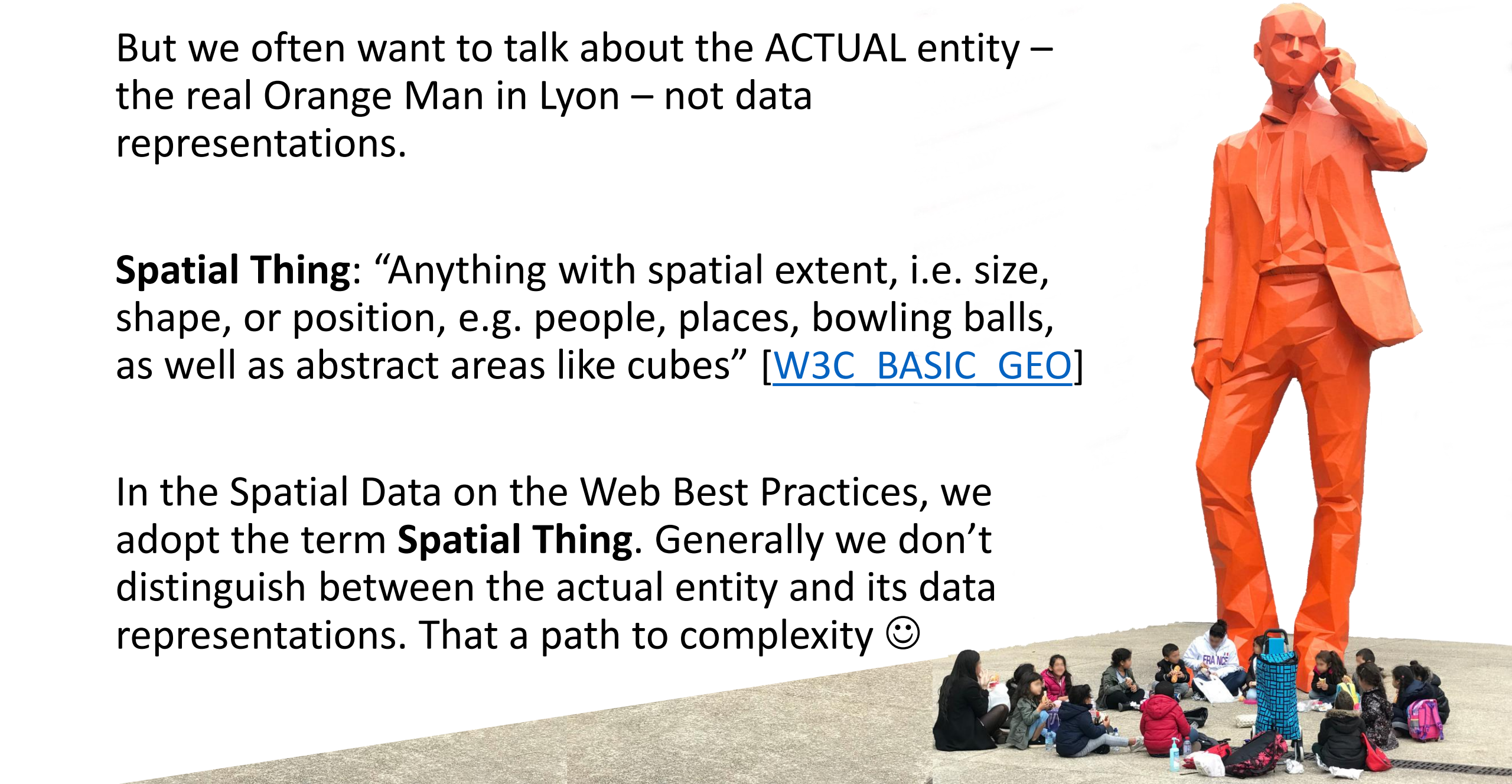
1. Statue
2. Meeting_place



But we often want to talk about the ACTUAL entity – the real Orange Man in Lyon – not data representations.

Spatial Thing: “Anything with spatial extent, i.e. size, shape, or position, e.g. people, places, bowling balls, as well as abstract areas like cubes” [W3C_BASIC_GEO]

In the Spatial Data on the Web Best Practices, we adopt the term **Spatial Thing**. Generally we don’t distinguish between the actual entity and its data representations. That a path to complexity ☺

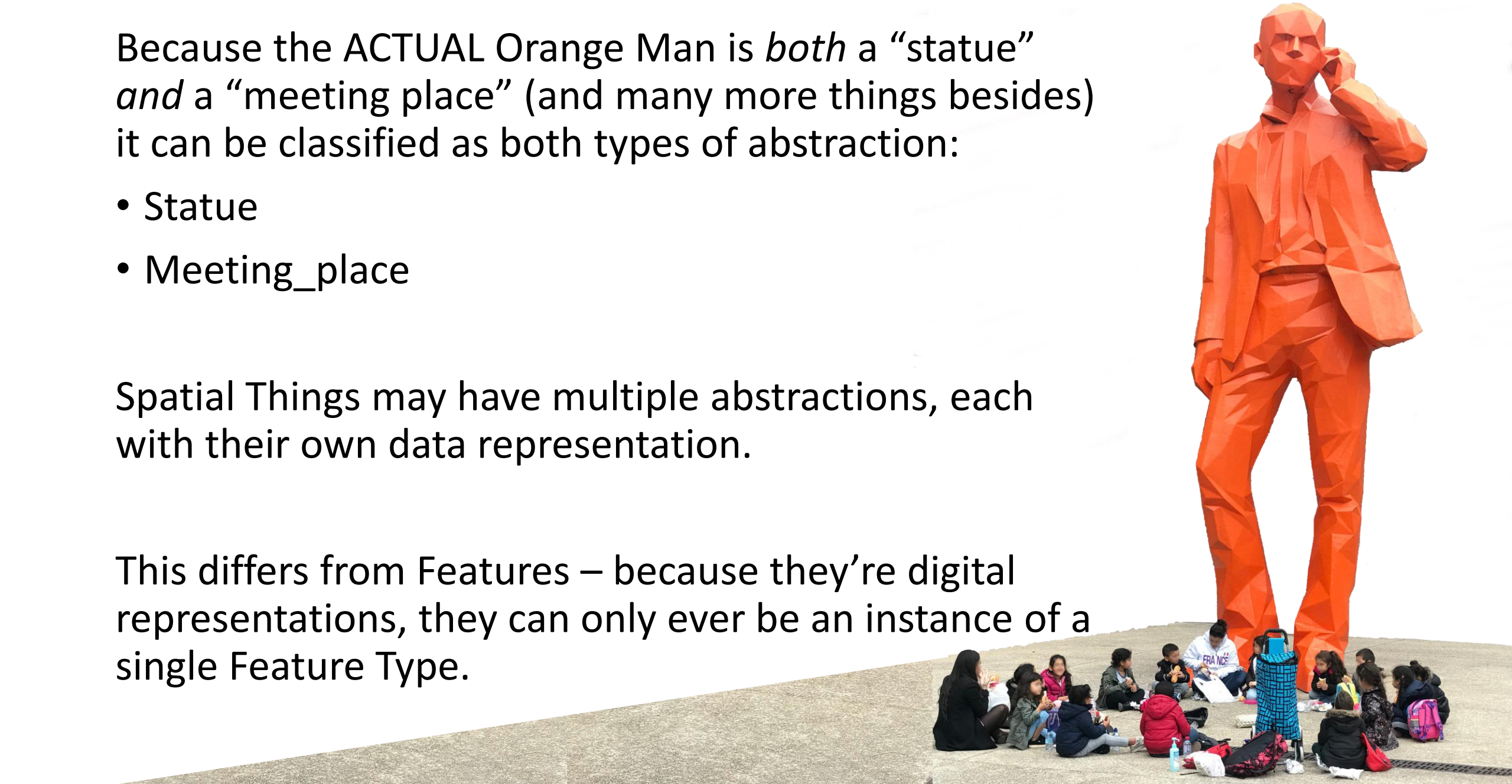


Because the ACTUAL Orange Man is *both* a “statue” *and* a “meeting place” (and many more things besides) it can be classified as both types of abstraction:

- Statue
- Meeting_place

Spatial Things may have multiple abstractions, each with their own data representation.

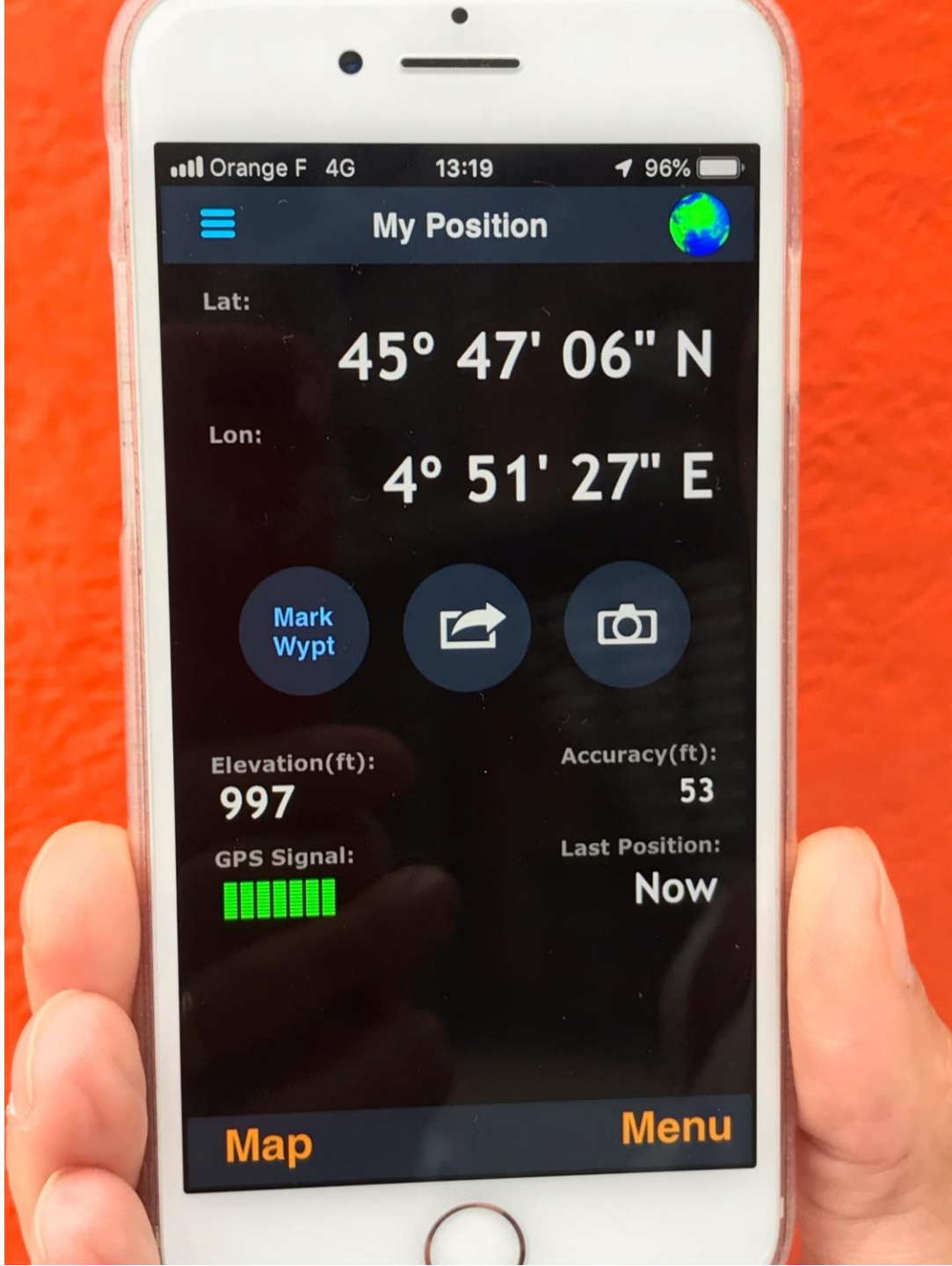
This differs from Features – because they’re digital representations, they can only ever be an instance of a single Feature Type.



Geometry is a *property* (or *attribute*) of a Spatial Thing.

```
{
  “geometry”: {
    “type”: “Point”,
    “coordinates”: [4.8575, 45.785]
  }
}
```

(GeoJSON Point encoding [RFC 7946])

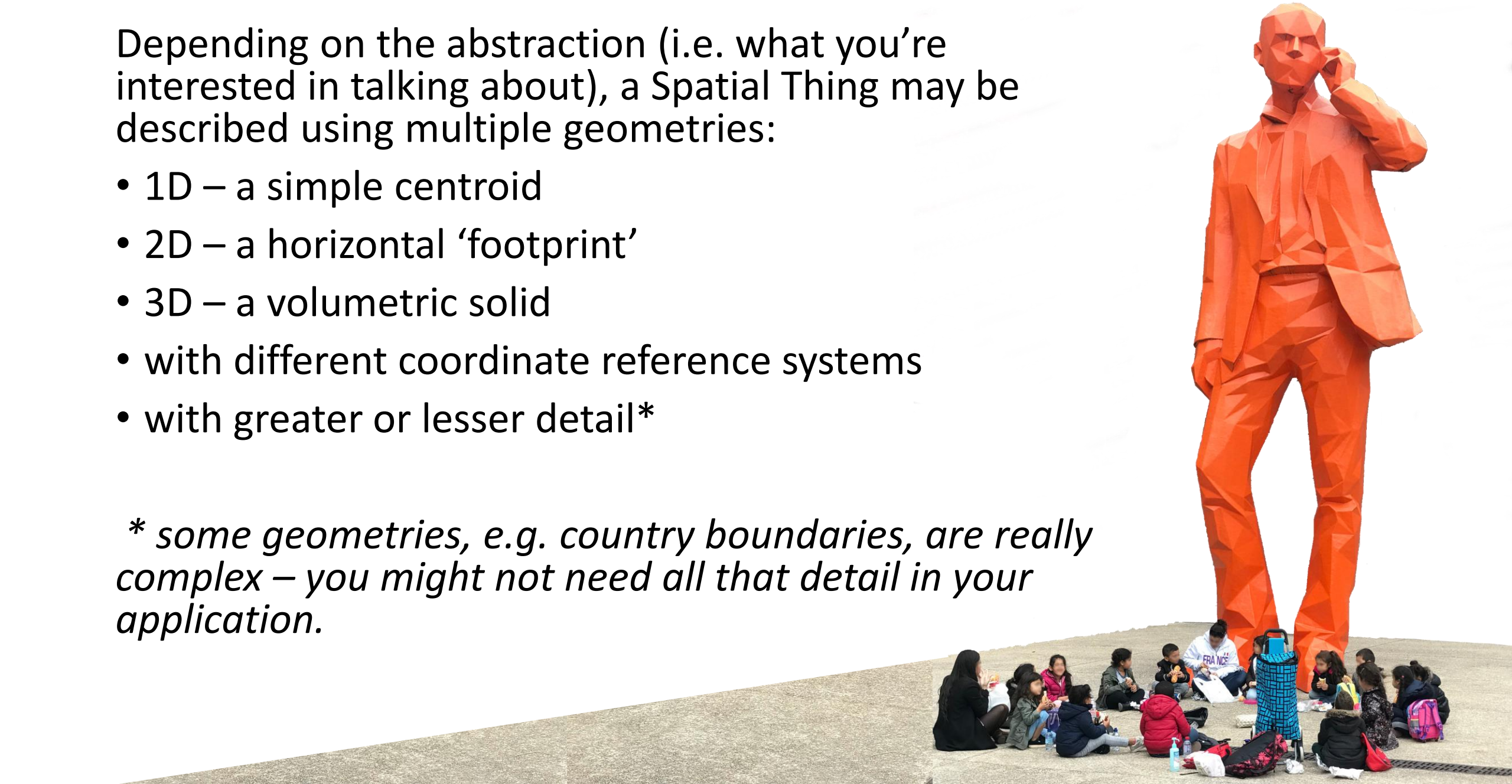


conversion: d-m-s to decimal https://www.fcc.gov/media/radio/dms-decimal

Depending on the abstraction (i.e. what you're interested in talking about), a Spatial Thing may be described using multiple geometries:

- 1D – a simple centroid
- 2D – a horizontal 'footprint'
- 3D – a volumetric solid
- with different coordinate reference systems
- with greater or lesser detail*

** some geometries, e.g. country boundaries, are really complex – you might not need all that detail in your application.*



§10. Linked Data

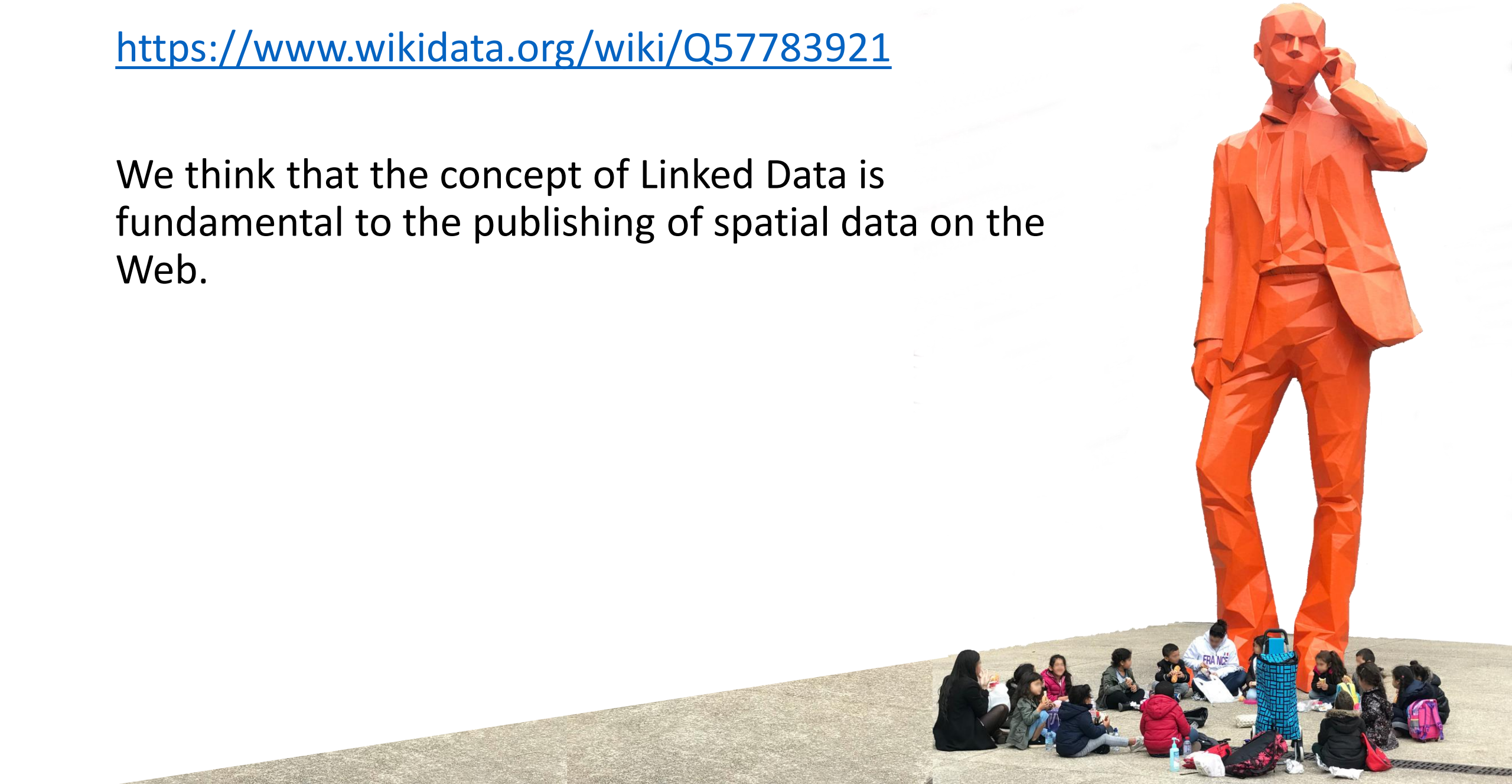
Linked data: is an approach to publishing data that puts linking at the core of data representation and uses Web linking to “weave data into a global graph”.

By identifying Spatial Things (and other resources) with URLs we can link data describing those Spatial Things just the same as Web-pages are linked using hyperlinks.

We can follow those links to find out more information and build up a more complete picture of the world around us.

https://www.wikidata.org/wiki/Q57783921

We think that the concept of Linked Data is fundamental to the publishing of spatial data on the Web.



This Linked Data approach is well described by the WEB-DATA 5-star scheme:

★ **Linkable**: use stable and discoverable global identifiers

★★ **Parseable**: use standardized data metamodels such as CSV, XML, RDF, or JSON.

★★★ **Understandable**: use well-known or at least well-documented vocabularies/schemas

★★★★ **Linked**: link to other resources whenever possible

★★★★★ **Usable**: label your document with a license

Best Practices implementation reports

DANK JE