# Mining Paper Catalogues

A Multilingual Solution to Reduce Verbose Fields to Key Words

Felix Kußmaul

University of Cologne

Dr Tim Evans



1 September 2017

European Association of Archaeologists 2017



## **Data Source**

92

Form 23 Conical cup with smooth vertical rim Konische Schale mit glattem Steilrand Coppa troncoconica con orlo verticale Coupe tronconique à rebord vertical lisse

Conical cup representing the further evolution of Form 22. The floor is now always flat or biconical (meeting the wall at a sharp angle on the inside), usually with a low foot.

- 23.1: Plain tapering rim, inclined slightly inwards, sometimes bearing applied decoration.
- 23.2: Rim with flat outer face bearing applied decoration bounded above and below by simple convex mouldings; inner face plain or with a groove at lip.

#### Production

Subform 23.1 is probably made in many parts of Italy; examples in Padana ware do not show applied decoration. Subform 23.2 is made in Italy but apparently not in the Padana region.

#### Date

Subform 23.2 belongs to the second and third quarters of the first century A.D.: it is common in the South Stoa deposits at Corinth and at Pompeii. Subform 23.1 is less readily datable as it may occur as a simplified version of Form 23 or Form 23: other features of the vessel (e.g. foot-profile, decoration) may provide a clearer indication of date than the shape of the rim.

#### Distribution

Subform 23.2 is very common throughout the Mediterranean region, with sporadic examples found in the North and in North-Italy: Subform 23.1 is relatively uncommon.

- References 23.1.1 Karthago K 78/172a, unpublished, Stamp L.MA.
- O.-C. -. Italy. 23.1.2 Berenice B210.2. Anepigraphic stamp, Italy.
- Corinth 1973 pl.84,70. Stamp CAMVRI, O.-C. 397. Arezzo.
   23.2.2 Berenice B216.2. Italy.

#### Other findenots

23.1 Asciburgium, Bologna, Bolsena, Conimbriga, Köln, Luni, Magdalensberg, Ordona, Pollentia, Roma.
23.2 Not separately listed.

- Concordance
- 23.1: Goudineau 20c; 25a; 37a. Berenice B210.2. 23.2: Goudineau 40. – Barocelli 11. – Berenice B216. – Haves
- 23.
  Pieces described as Haltern 9 sometimes belong to this form.
  P. M. K.





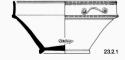




Figure 1: Sample from Conspectus catalog.

#### What we **have**:

#### Production

Subform 23.1 is probably made in many parts of Italy; examples in Padana ware do not show applied decoration. Subform 23.2 is made in Italy but apparently not in the Padana region.

#### Distribution

Subform 23.2 is very common throughout the Mediterranean region, with sporadic examples found in the North and in North-Italy; Subform 23.1 is relatively uncommon.

#### What we have:

#### Production

Subform 23.1 is probably made in many parts of Italy; examples in Padana ware do not show applied decoration. Subform 23.2 is made in Italy but apparently not in the Padana region.

#### Distribution

Subform 23.2 is very common throughout the Mediterranean region, with sporadic examples found in the North and in North-Italy; Subform 23.1 is relatively uncommon.

## What we want:

```
"form": "23.1".
   "origin": "Italy".
   "decoration": "none",
   "occurs": "uncommon"
},
   "form": "23.2",
   "origin": "Italy, not Padana",
   "occurs": "Mediterranean region:
              North-Italy"
```

#### What we have:

#### Production

Subform 23.1 is probably made in many parts of Italy; examples in Padana ware do not show applied decoration. Subform 23.2 is made in Italy but apparently not in the Padana region.

#### Distribution

Subform 23.2 is very common throughout the Mediterranean region, with sporadic examples found in the North and in North-Italy; Subform 23.1 is relatively uncommon.

#### UNSTRUCTURED DATA

#### What we want:

```
"form": "23.1".
   "origin": "Italy".
   "decoration": "none",
   "occurs": "uncommon"
},
   "form": "23.2",
   "origin": "Italy, not Padana",
   "occurs": "Mediterranean region:
              North-Italy"
```

#### STRUCTURED DATA

Problem: Running texts contain a lot of irrelevant information.

Information scientists call them redundant.



# **DEATH**

The world's leading cause of death



Text Mining is a general term covering several different ideas.

Text Mining is a general term covering several different ideas.

For instance:

Information retrieval

**Text Mining** is a general term covering several different ideas.

- Information retrieval
- · Cluster analysis

Text Mining is a general term covering several different ideas.

- Information retrieval
- · Cluster analysis
- · Statistical (lexical) analysis

Text Mining is a general term covering several different ideas.

- Information retrieval
- · Cluster analysis
- · Statistical (lexical) analysis
- Predictive analytics

**Text Mining** is a general term covering several different ideas.

- Information retrieval
- · Cluster analysis
- · Statistical (lexical) analysis
- Predictive analytics
- · Information extraction

Text Mining is a general term covering several different ideas.

- Information retrieval
- · Cluster analysis
- · Statistical (lexical) analysis
- Predictive analytics
- · Information extraction
- •

## Information Extraction

# Mining Paper Catalogues

A Multilingual Solution to Reduce Verbose Fields to Key Words

Felix Kußmaul

University of Cologne

Dr Tim Evans

UNIVERSITY of York

1 September 2017

European Association of Archaeologists 2017