

# Mining Paper Catalogues

A Multilingual Solution to Reduce Verbose Fields to Consistent Terminology

---

Felix Kußmaul



University of Cologne

Dr Tim Evans

UNIVERSITY *of York*

31 August 2017

European Association of Archaeologists 2017

## MOTIVATION

---

**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 22 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- 23.1.1 Karthago K 78/172a, unpublished.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.M.A., O.-C., Italy.
- 23.1.2 Berenice B210.2. Anepigraphic stamp. Italy.
- 23.2.1 Corinth 1973 pl.84,70. Stamp CAMVRI, O.-C. 397. Arezzo.
- 23.2.2 Berenice B216.2. Italy.

## Other findspots

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

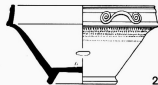
## Concordance

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

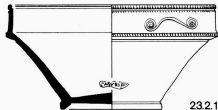
P. M. K.



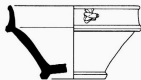
23.1.1



23.1.2



23.2.1



23.2.2

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: THEORY

---

Text Mining is a **general term** covering several different ideas, e. g.:

**Text Mining** is a **general term** covering several different ideas, e. g.:

- Information retrieval

**Text Mining** is a **general term** covering several different ideas, e. g.:

- Information retrieval
- Cluster analysis

**Text Mining** is a **general term** covering several different ideas, e. g.:

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

**Text Mining** is a **general term** covering several different ideas, e. g.:

- Information retrieval
- Cluster analysis
- Statistical (lexical) analysis
- **Information extraction**

**Text Mining** is a **general term** covering several different ideas, e. g.:

- Information retrieval
- Cluster analysis
- Statistical (lexical) analysis
- **Information extraction**
- ...

**Information extraction** (IE) is the task of automatically extracting structured information from unstructured [...] documents.



# Mining Paper Catalogues

A Multilingual Solution to Reduce Verbose Fields to Consistent Terminology

---

Felix Kußmaul



University of Cologne

Dr Tim Evans

UNIVERSITY *of York*

31 August 2017

European Association of Archaeologists 2017