Package ‘archdata’

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Description The archdata package provides several types of data that are typically used in archaeological research. It provides all of the data sets used in "Quantitative Methods in Archaeology Using R" by David L Carlson, one of the Cambridge Manuals in Archaeology.
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archdata-package

Includes archaeological data sets used in *Quantitative Methods in Archaeology Using R* by David L Carlson (Cambridge Manuals in Archaeology).

Details

- **Package:** archdata
- **Type:** Package
- **Version:** 1.2
- **Date:** 2018-01-31
- **License:** GPL

- Acheulean Seven African Acheulean Sites
- Arnhofen Point pattern of mining pits from the Neolithic chert mine at Arnhofen
- BACups Bronze Age Cups from Italy
- BarmoseI.grid Flakes per grid unit from Barmose I, South Zealand, Denmark
- BarmoseI.pp Piece plotted artifacts from Barmose I, South Zealand, Denmark
- Bornholm Female Iron Age Graves, Bornholm, Denmark
- DartPoints Five dart point types from Fort Hood, Texas, U.S.A.
- EIAGraves Early Iron Age Graves - Tell el-Far’ah, Palestine
- EndScrapers Upper Paleolithic End Scrapers from Castenet A and Ferrassie H, France
- EngrBone Upper Paleolithic Engraved Bone Design Elements - Spain
- ESASites Early Stone Age Sites - Norway
**Acheulean**

- **EWBurials** Ernest Witte Cemetery, Austin, County, Texas, U.S.A.
- **Fibulae** Bronze La Tène fibulae from Münisingen, Switzerland
- **Handaxes** Lower Paleolithic handaxes from Furze Platt, Maidenhead, Berkshire, England
- **MaskSite** Mask Site, Alaska, USA
- **Mesolithic** British Mesolithic assemblages
- **Michelsberg** Younger Neolithic Pottery from Central Europe
- **Nelson** Prehistoric Ceramics at Pueblo San Cristobal, New Mexico, U.S.A.
- **Olargesailie.maj** Major stone tool classes, Olorgesailie, Kenya
- **Olargesailie.sub** Stone tool subclasses, Olorgesailie, Kenya
- **OxfordPots** Distribution of Late Romano-British Oxford Pottery
- **PitHouses** Late Stone Age and Early Sami Iron Age Pithouses in Arctic Norway
- **RBGlass1** Romano-British Glass, Major and Minor Elements
- **RBGlass2** Romano-British Glass, Trace Elements
- **RBPottery** Romano-British Pottery
- **Snodgrass** House pits at the Mississippian Snodgrass site in Butler County, Missouri, U.S.A.
- **TRBPottery** Neolithic TRB Pottery from Demark

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**References**

See individual data sets for information on the source and publications illustrating their use.

<table>
<thead>
<tr>
<th>Acheulean</th>
<th>Seven African Acheulean Sites</th>
</tr>
</thead>
</table>

**Description**

Stone tool assemblage data from a paper by Lewis Binford (1972). The sites include Olorgesailie, Isimila, Kalambo Falls, Lochard, Kariandusi, Broken Hill, and Nsongezi. Data include approximate latitude and longitude for each site as well as the frequency for each of 12 stone tool types.

**Usage**

data(Acheulean)
### Format

A data frame with 7 observations showing the site location and the number of specimens for each of 12 stone artifact types. The localities are identified by rownames.

<table>
<thead>
<tr>
<th>Lat</th>
<th>Longitude (approximate)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long</td>
<td>Number of handaxes</td>
</tr>
<tr>
<td>HA</td>
<td>Number of cleavers</td>
</tr>
<tr>
<td>KN</td>
<td>Number of knives</td>
</tr>
<tr>
<td>FS</td>
<td>Number of flake scrapers</td>
</tr>
<tr>
<td>D</td>
<td>Number of discoids</td>
</tr>
<tr>
<td>CS</td>
<td>Number of core scrapers</td>
</tr>
<tr>
<td>P</td>
<td>Number of picks</td>
</tr>
<tr>
<td>CH</td>
<td>Number of choppers</td>
</tr>
<tr>
<td>SP</td>
<td>Number of spheroids</td>
</tr>
<tr>
<td>OLT</td>
<td>Number of other large tools</td>
</tr>
<tr>
<td>SS</td>
<td>Number of small scrapers</td>
</tr>
<tr>
<td>OST</td>
<td>Number of other small tools</td>
</tr>
</tbody>
</table>

### Details

Binford (1972) presents the percentages for 12 tool types at 32 assemblages from 7 sites (including Olorgesailie) which was based on Maxine Kleindienst’s analysis of Lower Paleolithic Acheulean sites in Africa (1961 and 1962). The data were also analyzed by Glynn Isaac (1977). To create the Acheulean data set, the percentages in the original publication have been converted back to counts by dividing by 100 and multiplying by the number of tools. The assemblages from each site are summed. The largest assemblage is Kalambo Falls with 1349 artifacts and the smallest is Broken Hill (Kabwe) with 94. The rownames identify each site and an attribute named Variables provides variable labels for each column.

### Source


### References


Examples

```r
data(Acheulean)
# Compute percentages for each assemblage
Acheulean.pct <- prop.table(as.matrix(Acheulean[,3:14]), 1)*100
round(Acheulean.pct, 2)
plot(OST~HA, Acheulean.pct)
boxplot(Acheulean.pct)
```

Description

The list object contains two data tables of coordinates, one representing the centers of round mining pits, the other holding the vertices of the observed polygonal area. Data was generated by G. Roth in 2006 (Roth 2008). Spatial distance unit is meter. For converting the data to a point pattern see Examples.

Usage

```r
data(Arhofen)
```

Format

A list with two entries. The first is a data frame, `points`, with 216 observations of x and y coordinates. Each line represents the center of a round mining pit. The second is a data frame, `window`, with 100 observations and 3 variables, x, y, and vertex ID. Each line represents a vertex of the polygonal observation area.

- `points$x` (num) x coordinates of pit centers in m
- `points$y` (num) y coordinates of pit centers in m
- `window$x` (num) x coordinates of observation window vertices in m
- `window$y` (num) y coordinates of observation window vertices in m
- `window$id` (num) id for observation window vertices

Details

The coordinates in dataframe `points` represent the centres of 216 mining pits in the southeastern section of the 2001 excavation at the Neolithic chert mine of Abensberg-Arnhofen (Roth 2008). Direct dates for mining from the excavation place the site at 5300-4200 BC while use of mined material ends with the Bell Beaker Culture suggesting an end date for the mine of ca. 2200 BC. The regular pit pattern presented here dates to about 4200 BC, i.e. to the Münchshöfen Culture (4500-4000 BC). Arnhofen is the largest neolithic mine in Germany. The mining organization was analyzed by Roth (2008) using point pattern analysis (cf. Baddeley et al. 2016) which showed the neolithic mining to be conducted by farmers from surrounding villages (presumably on a seasonal basis).
The pit centers were located manually in a GIS using excavation maps from between 3 to 4 m below present surface. Mining pits were similar to vertical tubes with an average diameter of 1 m and a rounded horizontal section. A point therefore represents the center of such a vertical tube in the horizontal plane. A few of the pits reached a depth of nearly 8 m below surface. The vertices of the observation area polygon circumscribe a slightly smaller region than the excavated area. The list contains the additional attributes: reference for the data, short data description (site) and geographical coordinates (Lat/Lon) of the excavation.

Source


References


Examples

```r
# data and package spatstat by A. Baddeley et al. 2016 for point pattern analysis
# package spatstat is described and illustrated in Baddeley et al. (2016)
if (requireNamespace("spatstat", quietly = TRUE)) {
  library(spatstat)
  data(Arnhofen)  # to shorten the following code

  # generate observation window object; note the polygonal outline.
  arnwin <- owin(poly=ap$window[, 1:2])

  # generate point process pattern object from points and owin object
  app <- ppp(ap$points$x, ap$points$y, arnwin)

  unitname(app) <- c("metre", "metres")  # optional, assign unitnames

  # note that owin vertices traverse the polygon anticlockwise
  plot(arnwin)
  points(ap$window[, 1:2], pch=3, cex=.5)
  text(ap$window[, 1], ap$window[, 2], ap$window[, 3], pos=3, cex=.7)

  # visual inspection of the point process pattern
  plot(app)

  # Computing the summary function "centered Besag's L" assuming
  # homogeneous intensity. Centered Besag's L is just a conveniently
  # transformed Ripley's K. see references in ?Kest.
  set.seed(1)
  Lcentrd <- envelope(app, Lest, nsim=49, nrank=1, global=TRUE, r=seq(0,7, 0.01),
                      correction="translate", transform=expression(.-r))
  # for the arguments see ?Kest and ?envelope.
```
BACups

Bronze Age Cups from Italy

Description

Measurements on Early and Late Bronze Age ceramic cups from Italy analyzed by Lukesh and Howe (1978).

Usage

data("BACups")

Format

A data frame with 60 observations on the following 6 variables.

RD  Rim Diameter
ND  Neck Diameter
SD  Shoulder Diameter
H  Total Height
NH  Neck Height
Phase  Chronological Phase: Protoapennine, Subapennine
Details
These data on the dimensions of Bronze Age cups from Italy are a subset extracted from a set published by Lukesh and Howe (1978) of the specimens for which full data was available. The data were scanned from Table A4 (Appendix A) in Baxter (1994). The Protoapennine cups are Early Bronze Age while the Subapennine cups are Late Bronze Age.

Source

Examples
data(BACups)
by(BACups[, -6], BACups$Phase, summary)
plot(RD~H, BACups, pch=as.numeric(Phase))
legend("topleft", levels(BACups$Phase), pch=1:2)

BarmoseI.grid Flakes per grid unit from Barmose I, South Zealand, Denmark

Description
Flake counts for each of 107 contiguous grid units at the Barmose I Maglemosian site used by Blankholm (1991) to illustrate several spatial analysis methods.

Usage
data(BarmoseI.grid)

Format
A data frame with 107 observations on the following 3 variables.

North  North coordinate of southwest corner of unit
East   East coordinate of southwest corner of unit
Debitage  Number of flakes

Details
Barmose I is an early Maglemosian (7500 - 6000 BCE) site located in Barmosen in South Zealand, Denmark. The site was excavated in 1967-1971 by Axel Johansson (Johansson 1971 and 1990). Flake counts and grid coordinates were taken from Figure 100 in Blankholm (1991) for BarmoseI.grid. BarmoseI.pp includes the locations of 473 artifacts from Appendix C of Blankholm’s book.
Source

References

Examples
```r
data(BarmoseI.grid)
plot(North~East, BarmoseI.grid, xlim=c(0, 12), ylim=c(0, 14), type="n", asp=1)
with(BarmoseI.grid, text(East+.5, North+.5, Debitage, cex=.8))
```

BarmoseI.pp

*Piece plotted artifacts from Barmose I, South Zealand, Denmark*

Description
Two dimensional locations of 473 artifacts at the Barmose I Maglemosian site used by Blankholm (1991) to illustrate several spatial analysis methods.

Usage
data(BarmoseI.pp)

Format
A data frame with 473 observations on the following 4 variables.

North North coordinate
East East coordinate
Class Numeric code used by Blankholm: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11
Label Artifact type: Scrapers, Burins, Lanceolate Microliths, Microburins, Flake Axes, Core Axes, Square Knives, Blade/Flake Knives, Denticulated/Notched Pieces, Cores, Core Platforms

Details
Barmose I is an early Maglemosian (7500 - 6000 BCE) site located in Barmosen in South Zealand, Denmark. The site was excavated in 1967-1971 by Axel Johansson (Johansson 1971 and 1990). Flake counts and grid coordinates were taken from Figure 100 in Blankholm (1991) for BarmoseI.grid. BarmoseI.pp includes the locations of 473 artifacts from Appendix C of Blankholm’s book (1991).
**Source**

**References**

**Examples**
```r
data(BarmoseI.pp)
plot(North~East, BarmoseI.pp, asp=1, pch=as.numeric(Class))
legend("bottomleft", levels(BarmoseI.pp$Label), pch=1:11, cex=.75)
```

---

**Description**
Data on the occurrence of 39 different types of ornamentation in 77 female graves at Iron age sites in Bornholm, Denmark.

**Usage**
```r
data("Bornholm")
```

**Format**
A data frame with 77 observations on the following 42 variables.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>Observation Number</td>
</tr>
<tr>
<td>Site</td>
<td>Site/Bural Number</td>
</tr>
<tr>
<td>Period</td>
<td>Chronological period: 1a, 1b, 2a, 2b, 2c, 3a, and 3b</td>
</tr>
<tr>
<td>N2c</td>
<td>count</td>
</tr>
<tr>
<td>R3d</td>
<td>count</td>
</tr>
<tr>
<td>N2a</td>
<td>count</td>
</tr>
<tr>
<td>Q3b</td>
<td>count</td>
</tr>
<tr>
<td>R3c</td>
<td>count</td>
</tr>
<tr>
<td>N1</td>
<td>count</td>
</tr>
</tbody>
</table>
Details

Nielsen used data on 39 different types of ornaments from Ørsnes (1966) to seriate a series of 77 Late Germanic Iron Age (CE 550 - 800) graves from Bornholm, Denmark (1988, Table 4 and Figure 7). Baxter re-analyzed the data to illustrate correspondence analysis (1994: 104-107, Table A6). These data were taken from Nielsen’s Table 4 showing her seriation. Baxter’s version is scrambled in order to evaluate different seriation methods and does not include the ornament types (illustrated in Nielsen’s Figure 7). The data include Ørsnes’s period and subperiod designations (1966).
Source


Examples

```r
if (requireNamespace("MASS", quietly = TRUE)) {
  data(Bornholm)
  Bornholm.ca <- MASS::corresp(Bornholm[, 4:42], nf=2)
  plot(Bornholm.ca$rscore, pch=substring(Bornholm$Period, 1, 1), cex=.75)
  boxplot(Bornholm.ca$rscore[, 1]~Bornholm$Period, main="First CA Axis by Period")
} else {
  cat("This example requires the MASS package.
")
}
```

DartPoints

*Five dart point types from Fort Hood, Texas, U.S.A.*

Description

Metric and categorical measurements on 91 Archaic dart points recovered during surface surveys at Fort Hood, Texas representing five types.

Usage

```
data(DartPoints)
```

Format

A data frame with 91 observations on the following 17 variables.

Name          Dart point type: Darl, Ensor, Pedernales, Travis, Wells
Catalog       Fort Hood catalog number
TARL          Texas Archeological Research Laboratory site number
Quad          Fort Hood Quad
Length        Maximum Length (mm)
Width         Maximum Width (mm)
Thickness     Maximum Thickness (mm)
Measurements on five types of dart points from Fort Hood in central Texas (Darl, Ensor, Pedernales, Travis, and Wells). The points were recovered during 10 different pedestrian survey projects during the 1980's and were classified and measured by H. Blaine Ensor using the system created by Futato (1983) as described in Carlson, S., et al 1987, pp 51-70 and Appendices 4 and 7.
EIAGraves

Early Iron Age Graves - Tell el-Far‘ah, Palestine

Description
Counts of 52 different ceramic types in 6 large tombs and 10 broadly contemporaneous groups of tombs.

Usage
data("EIAGraves")

Format
A data frame with 52 rows (ceramic types) found in 16 units (a grave or a group of graves).

Type  Ceramic type number
G100  19 broadly contemporaneous graves and tombs
G200B 30 broadly contemporaneous graves and tombs
G200C 28 broadly contemporaneous graves and tombs
G201  An individual tomb
G229  An individual tomb
G500N 19 broadly contemporaneous graves and tombs
G532  An individual tomb
G542  An individual tomb
G552  An individual tomb
G562  An individual tomb
G600  52 broadly contemporaneous graves and tombs
G800  39 broadly contemporaneous graves and tombs
G900B 41 broadly contemporaneous graves and tombs
G900L  3 broadly contemporaneous graves and tombs
G900S  5 broadly contemporaneous graves and tombs
G900U  7 broadly contemporaneous graves and tombs

Details
The data on counts of 52 different ceramic types in 6 large tombs and 10 broadly contemporaneous groups of tombs come from Tell el-Far‘ah (South), Palestine. They were originally published in McClellan (1979). The data were scanned from Table 2.5 in Baxter (2003, p. 25-6). The 52 rows correspond to different pottery types found in association with the burials.
**EndScrapers**

**Source**


**Examples**

```r
data(EIAGraves)
# How many ceramics of each type?
# Exclude the first column which is the ceramic type number
rowSums(EIAGraves[, -1])
# How many tomb groups contain each type?
rowSums(EIAGraves[, -1]>0)
# How many ceramics in each tomb group?
colSums(EIAGraves[, -1])
# How many types are found in each tomb group?
colSums(EIAGraves[, -1]>0)
```

**Description**

Data on 3000 Upper Paleolithic end scrapers from two sites analyzed by James Sackett (1966) and reanalyzed by Dwight Read (1974 and 2007).

**Usage**

```r
data(EndScrapers)
```

**Format**

A data frame with 48 observations on the following 6 variables.

- **Width**: Width: Narrow, Wide
- **Sides**: Sides: Convergent, Parallel
- **Curvature**: End Curvature: Round, Medium, Shallow
- **Retouched**: Retouching: Retouched, Unretouched
- **Site**: Site: Castenet A, Ferrassie H
- **Freq**: Number of end scrapers

**Details**

The scrapers are grouped on 5 categorical variables into 48 groups. Sackett’s analysis employed Chi square and the examination of residuals. Read used the data to illustrate loglinear modelling (1974, 2007). The data come from Tables IV and VIII (pp 373 and 380) in Sackett’s original article.
EngrBone

Source

References

Examples
```r
data(EndScrapers)
xtabs(Freq~Site+Curvature, EndScrapers)
xtabs(Freq~Curvature+Sides+Site, EndScrapers)
```

<table>
<thead>
<tr>
<th>EngrBone</th>
<th>Upper Paleolithic Engraved Bone Design Elements - Spain</th>
</tr>
</thead>
</table>

Description
Counts of 44 engraved bone design elements at five Upper Paleolithic hunter-gatherer sites in Cantabrian, Spain.

Usage
data("EngrBone")

Format
A data frame with 44 types of engraved bone found at 5 sites.
A Altamira
CM Cueto de la Mina
EJ El Juyo
EC El Cierro
LP La Paloma

Details
Counts of 44 engraved bone design elements at five prehistoric hunter-gatherer sites in Cantabrian, Spain. The data were originally analyzed by Conkey (1980) and appear in this format in Kaufman (1998). Kintigh (1984) used these data to illustrate a method for comparing the diversity between samples. The data were scanned from Table 2.4 in Baxter (2003, p. 24).
ESASites

Source


References


Examples

data(EngrBone)
# Number of engraved bone specimens at each site
NS <- colSums(EngrBone)
# Number of kinds of engraved bone at each site
NT <- colSums(EngrBone>0)
plot(NS, NT, xlab="Number of Specimens", ylab="Number of Types", main="Engraved Bone", las=1)
text(NS, NT, names(EngrBone), pos=c(1, 3, 3, 3, 3))
Key <- apply(attr(EngrBone, "Variables"), 1, paste, collapse=" - ")
legend("topleft", legend=Key)

ESASites  Early Stone Age Sites - Norway

Description

Data on 43 Early Stone Age assemblages in Norway come originally from Bølviken et al (1982).

Usage

data("ESASites")

Format

A data frame with 43 observations on the following 16 variables.

TA  Tanged Arrows
BA  Blade Arrows
TOA  Transverse and Oblique Arrows
AA  Atypical Arrows
M  Microliths
FK  Flake Knives
BK  Blade Knives
\textbf{EWBurials}

\textbf{Details}

Data on 43 Early Stone Age (8000 - 4000 BCE) assemblages in Norway come originally from Bølviken et al (1982). The data were scanned from Table A5 (Appendix A) in Baxter (1994).

\textbf{Source}


\textbf{Examples}

```r
data(ESASites)
NS <- rowSums(ESASites)
NT <- rowSums(ESASites > 0)
plot(NS, NT, xlab="Number of Artifacts", ylab="Number of Types", main="Early Stone Age Sites", las=1)
```

\textbf{EWBurials}

\textit{Ernest Witte Cemetery, Austin, County, Texas, U.S.A.}

\textbf{Description}

Sex, age, burial group, location, and burial orientation and direction facing from the Ernest Witte site, a Late Archaic cemetery in Texas (Hall 1981).

\textbf{Usage}

data(EWBurials)
**Format**

A data frame with 49 observations on the following 7 variables.

- **Group** Cemetery group, a factor with levels 1, 2
- **North** North grid location of the burial in meters (excavation grid system)
- **West** East grid location of the burial in meters (excavation grid system)
- **Age** Age category, a factor with levels Fetus, Infant, Child, Adolescent, Young Adult, Adult, Middle Adult, Old Adult
- **Sex** a factor with levels Female, Male
- **Direction** circular data in degrees indicating the direction of the individual measured from the head along the vertebral column
- **Looking** circular data in degrees indication the direction the individual is facing

**Goods** Presence or absence of grave goods

**Details**

The Ernest Witte site in Austin County, Texas contains four burial groups from different time periods. Group 1 includes 60 interments and that occurred between about 2000 and 1200 BCE. Group 2 is the largest with 148 interments. The burials in this group were interred between about CE 200 and 500. Groups 3 and 4 include only 10 and 13 interments and date to CE 500 to 1500, but are not included in this data set which was taken from Appendix II (Hall 1981). Two of the variables, direction and looking, are circular data and require package circular. Hall (2010) provides a summary of the site and its significance.

**Source**


**References**


**Examples**

```r
data(EWBurials)
xtabs(~Age+Sex+Group, EWBurials)
if (requireNamespace("circular", quietly = TRUE)) {
  plot(EWBurials$Direction)
} else {
  cat("This example requires package circular.\n")
}
```
Bronze La Tène fibulae from Munsingen, Switzerland

Description

The La Tène fibulae from the Iron Age cemetery of Münsingen near Berne, Switzerland (100 - 500 BCE) described by F. R. Hodson (1968).

Usage

data("Fibulae")

Format

A data frame with 30 observations on the following 16 variables.

Grave  Grave number
Mno  Museum number
FL  Foot Length
BH  Bow Height
BFA  Bow Front Angle
FA  Foot Angle
CD  Coil Diameter
BRA  Bow Rear Angle
ED  Element Diameter
FEL  Foot Extension Length
C  Catchplate
BW  Bow Width
BT  Bow Thickness
FEW  Foot Extension Width
Coils  Number of Coils
Length  Total Length

Details

The La Tène fibulae from the Iron Age cemetery of Münsingen near Berne, Switzerland were reported by F. R. Hodson (1968). They were featured in several papers by Hodson over the years and used to illustrate a variety of multivariate statistical techniques. The data here were taken from Doran and Hodson (1975), Table 9.1. These are the raw measurements including 5 missing values in foot extension thickness and 1 in foot extension length.
Handaxes

Source

References

Examples

data(Fibulae)
t(sapply(Fibulae[, 3:16], quantile, na.rm=TRUE))
plot(density(Fibulae$Length, bw="SJ"), main="Kernel Density Plot of Length")

---

Handaxes

Lower Paleolithic handaxes from Furze Platt, Maidenhead, Berkshire, England

Description
Handaxes from the Furze Platt site stored at the Royal Ontario Museum.

Usage
data(Handaxes)

Format
A data frame with 600 observations on the following 8 variables.

Catalog Specimen catalog number
L  Maximum Length
L1 Distance from the butt to the location of the maximum breadth measured along the length dimension

B Maximum breadth

B1 Breadth measured at 1/5 of the length from the tip. Measured perpendicular to the length

B2 Breadth measured at 1/5 of the length from the butt. Measured perpendicular to the length

T Maximum thickness, not necessarily measured at the maximum breadth

T1 Thickness measured at B1

Details

The data consist of measurements on 600 handaxes from the Furze Platt site stored at the Royal Ontario Museum that were measured by William Fox. The measurements follow the system used by Derek Roe (Roe 1964, 1968, 1981). Fox’s measurements were digitized by Tony Baker and uploaded to his website.

Source


References


Examples

data(Handaxes)
summary(Handaxes)
MaskSite

Mask Site, Alaska, USA

Description

The distribution of five categories of artifacts at the Mask site, occupied by the Nunamiut (Binford 1978a).

Usage

data("MaskSite")

Format

A data frame with 494 observations on the following 3 variables.

X horizontal coordinate
Y vertical coordinate
Category a factor with levels Artifacts, Spent Cartridges, Wood Shavings, Bone Splinters, and Large Bones

Details

The Mask Site was reported by Binford (1978a) as an example of a hunting stand where Nunamiut men watched for game as part of a larger ethnoarchaeological study of the Nunamiut (Binford 1978b). The data from the site have been widely used to illustrate the utility of various methods of intra site spatial analysis (including Baxter 2003, Blankholm 1991, Kintigh 1990, and Whallon 1984). The data consist of 494 locations of five different classes (artifacts, spent cartridges, wood shavings, bone splinters, and large bones). The data were scanned from Appendix A (Blankholm 1991).

Source


References

Examples

data(MaskSite)
plot(Y~X, MaskSite, main="Mask Site", asp=1, pch=as.numeric(Category), cex=.75)
legend("bottomright", levels(MaskSite$Category), pch=1:5)

Mesolithic

British Mesolithic assemblages

Description

Counts of 5 different stone artifact types from 33 Mesolithic sites in Britain.

Usage

data("Mesolthic")

Format

A data frame with 33 observations on the following 5 variables.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microliths</td>
<td>Number of microliths</td>
</tr>
<tr>
<td>Scrapers</td>
<td>Number of scrapers</td>
</tr>
<tr>
<td>Burins</td>
<td>Number of burins</td>
</tr>
<tr>
<td>Axes</td>
<td>Number of axes</td>
</tr>
<tr>
<td>Saws</td>
<td>Number of saws</td>
</tr>
</tbody>
</table>

Details

Data on 33 Mesolithic (9000 - 4000 BCE) assemblages are a subset Pitts (1979) extracted from a set published by Mellars (1976). The data were scanned from Table A3 (Appendix A) in Baxter (1994).

Source


Examples

data(Mesolithic)
Mesolithic.pct <- prop.table(as.matrix(Mesolithic), 1)*100
apply(Mesolithic.pct, 2, quantile)
cor(Mesolithic.pct)
Description
A sites by types table of abundance data on vessel types in archaeological features of the Younger Neolithic Michelsberg Culture from Belgium, France and Germany by Birgit Höhn (2002).

Usage
data(Michelsberg)

Format
A data frame with 109 observations on the following 42 variables. Each line represents one feature. Some categorical variables are not converted to factors.

id Unique identifier (categorical, integer)
site_name Name of site (categorical, character)
catalogue_nr Number in catalogue of Höhn (2002) (categorical, integer)
feature_nr Number of the archaeological feature (categorical, numeric)
to3 Pot/vessel type 3 count
f4 Bottle type 4 count
b2 Beaker type 2 count
to2 Pot/vessel type 2 count
b3 Beaker type 3 count
b7 Beaker type 7 count
kw5 Carinated bowl type 5 count
vg1 Storage vessel type 1 count
vg2 Storage vessel type 2 count
t4a Tulip beaker type 4a count
kw2 Carinated bowl type 2 count
kw4 Carinated bowl type 4 count
b5 Beaker type 5 count
t3b Tulip beaker type 3b count
f3 Bottle type 3 count
kw3 Carinated bowl type 3 count
kw1 Carinated bowl type 1 count
b6 Beaker type 6 count
to1 Pot/vessel type 1 count
Details

Höhn (2002) recorded pottery vessel shapes from 108 archaeological features (pits, ditches etc.) from 69 sites of the Central European Younger Neolithic Michelsberg Culture (MBK; 4350-3500 BC) following Lüning’s (1967) typology. Her correspondence analysis of the abundance data (columns 5 to 39) exhibits a pronounced Gutman effect or arch, suggesting the data set is structured by a time gradient. Recently Mischka et al. (2015) projected an 109th Michelsberg assemblage, Flintbek LA48, a pit with Michelsberg pottery from a North German site of the Funnel Beaker Culture (TRB), as a supplementary row into the existing chronology thereby connecting the relative chronologies of TRB and MBK. The data frame contains as attributes the references for the data, a typological key and the map projection. Note that ambiguous fragments of conical bowls (ks1 and ks2) are assigned as 0.5 to each of the two types resulting also in positive entries suitable to analysis by CA.

Source


Examples
if (requireNamespace("ca", quietly = TRUE)) {
  data(Michelsberg)
  str(Michelsberg)
  names(Michelsberg)[5:39]
  attributes(Michelsberg)$typological_key

  # geographical distribution
  xy <- as.matrix(Michelsberg[,41:42])/1000
  plot(xy, asp=1, pch=16, col=rgb(.3,.3,.3,.5))
  text(xy[,1], xy[,2], Michelsberg$id, cex=.7, pos=2)
  # Note site 109 to the Northeast;

  # preparing the data set for CA
  abu <- Michelsberg[, 5:39]
  rownames(abu) <- Michelsberg$id

  # CA with site 109, Flintbek LA48, as supplementary row
  MBK.ca <- ca::ca(abu, ndim=min(dim(abu)-1), suprow=109 )

  # asymmetric biplot with row quality and column contribution
  plot(MBK.ca, map="rowprincipal", contrib=c("relative", "absolute"))
  title(main="Row-isometric Biplot of Michelsberg CA", cex.sub=.7,
        sub="color intensity represents quality for sites and contributions for types")
} else {
  cat("This example requires package ca to run.\n")
}

Nelson Prehistoric Ceramics at Pueblo San Cristobal, New Mexico, USA

Description
Ceramic distribution in a midden deposit at Pueblo San Cristobal reported by Nels Nelson in 1916.

Usage
data(Nelson)

Format
A data frame with 10 observations on the following 8 variables.

Depth  Depth in feet from 1 to 10 for 1 foot arbitrary excavation levels
Corrugated Number of corrugated ware ceramics
Biscuit Number of Biscuit ware ceramics
Type_I Number of two and three color painted ware ceramics
Type_II_Red  Number of two color glazed red ware ceramics
Type_II_Yellow Number of two color glazed yellow ware ceramics
Type_II_Gray  Number of two color glazed gray ware ceramics
Type_III   Number of three color glazed ware ceramics

Details

Data from a midden deposit at San Cristobal in the American Southwest. It has been used as a classic illustration of the potential for creating a relative chronology using frequency seriation of ceramic artifact types. The site was occupied approximately from CE 1350 to 1680. Ceramic artifact fragment counts are presented for each 1-foot (30 cm) arbitrary level excavated in the midden deposit. When converted to percentages (usually excluding the corrugated ware), the data illustrate a classical "battleship curve" like those described in Ford (1962).

Source


References


Examples

data(Nelson)
# Remove Depth and Corrugated and compute percentages
Nelson.pct <- prop.table(as.matrix(Nelson[,]3:7)), 1)*100
# Percentages for each type by level
round(Nelson.pct, 2)

# Battleship plot from plotrix package
if (requireNamespace("plotrix", quietly = TRUE)) {
  plotrix::battleship.plot(Nelson.pct, col="gray")
} else {
  cat("This example requires package plotrix.\n")
}
Description

The data represent the number of specimens in each of 6 major artifact classes recovered from 19 localities at the Lower Paleolithic site of Olorgesailie as described in Isaac (1977).

Usage

data(Olorgesailie.maj)

Format

A data frame with 19 observations showing the number of specimens for each of 6 stone artifact types.

- Large cutting tools  Number of large cutting tools
- Heavy duty tools  Number of heavy duty tools
- Large scrapers  Number of large scrapers
- Other large tools  Number of other large tools
- Small tools  Number of small tools
- Spheroids  Number of spheroids

Details

The data come from Table E1 in Isaac (1977: 239). The rownames identify localities in the lower, middle and upper strata to provide relative chronological placement. They are in the same order as the columns in the table: LS1 (BBB), LS2 (BBA), LS3(FB), LS4(FB-HL), LS5(FB-I3), MS1a(DE/89 A-L), MS1b(DE/89 A-I), MS2a(DE/89 B-L), MS2b(DE/89 B-I), MS3(DE/89 C), MS4(H/6), MS5(H/9 A), MS6(H/9 AM), MS7(Mid), MS8(Meng), MS9(LHS), US1(TRTrM10), US2(Hog), US3(MFS). Potts (2011) provides updated information on the site complex.

Source


References


Examples

```r
data(Olorgesailie.maj)
# Chi square after removing the first two columns and simulating the p
# value since there are a number of very small expected values
chisq.test(Olorgesailie.maj, simulate.p.value=TRUE)
# Compute percentages over the localities
Olor.pct <- prop.table(as.matrix(Olorgesailie.maj), 1)*100
boxplot(Olor.pct)
```

Description

The data represent the number of specimens in each of 16 artifact subclasses recovered from 19 localities at the Lower Paleolithic site of Olorgesailie as described in Isaac (1977).

Usage

```r
data(Olorgesailie.sub)
```

Format

A data frame with 19 observations showing the stratum, locality and the number of specimens for each of 16 stone artifact types.

Strat stratum: Lower, Middle, Upper
Locality Locality
HA Number of handaxes
PHA Number of pick-like handaxes
CHA Number of chisel handaxes
CL Number of cleavers
KN Number of knives
BLCT Number of broken large cutting tools
PAT Number of picks and trièdres
CH Number of choppers
CS Number of core scrapers
LFS Number of large flake scrapers
CB Number of core bifaces
OLT Number of other large tools
SSS Number of small scrapers simple
SSNP Number of small scrapers nosed point
OST Number of other small tools
SP Number of spheroids
**OxfordPots**

**Details**

The data come from Table E1 in Isaac (1977: 239). The Locality contains the column headings in the original table. The rownames are the same as those in Olorgesailie.maj. The attribute Variables in the data frame includes the full variable names. Potts (2011) provides updated information on the site complex.

**Source**


**References**


**Examples**

```r
data(Olorgesailie.sub)
# Chi square after removing the first two columns and simulating the p value since there are a number of very small expected values
chisq.test(Olorgesailie.sub[,3:18], simulate.p.value=TRUE)
# Compute percentages over the localities
Olor.pct <- prop.table(as.matrix(Olorgesailie.sub[,3:18]), 1)*100
boxplot(Olor.pct, cex.axis=.7)
```

---

**OxfordPots**

*Distribution of Late Romano-British Oxford Pottery*

**Description**

Percentages of Late Romano-British Oxford Pottery on 30 sites

**Usage**

```r
data("OxfordPots")
```

**Format**

A data frame with 30 observations on the following 7 variables.

- **Place** Site name
- **OxfordPct** Percentage of Oxford pottery
PitHouses

OxfordDst  Distance to Oxford in miles
NewForestPct  Percentage of New Forest pottery
NewForestDst  Distance to New Forest
WalledArea  Acreage of walled towns
WaterTrans  Availability of a water transportation link, 1=probable presence

Details

In several publications Ian Hodder analyzed the spatial distribution of Late Romano-British pottery produced at Oxford as evidence of trade and marketing patterns. These data come from the article by Fulford and Hodder (1974). In addition to the percentage of Oxford pottery and the distance to Oxford for 30 sites, data on New Forest pottery was included and information on walled town size and the availability of water transportation.

Source


References


Examples

data(OxfordPots)
# Construct Fulford and Hodder's Figure 3
Oxford.lm1 <- lm(log(OxfordPct)~OxfordDst, OxfordPots, subset=WaterTrans==0)
Oxford.lm2 <- lm(log(OxfordPct)~OxfordDst, OxfordPots, subset=WaterTrans==1)
plot(log(OxfordPct)~OxfordDst, OxfordPots, xlim=c(0, 160), yaxt="n", ylim=c(0, 3.25),
     ylab="Percentage of Oxford Pottery", xlab="Distance (miles)",
     pch=c(1, 16)[WaterTrans+1], cex=1.5, lwd=2)
# Add log y-axis
axis(2, log(c(1, 5, 10, 20)), c(1, 5, 10, 20), las=1)
abline(Oxford.lm1, lwd=2)
abline(Oxford.lm2, lwd=2)

PitHouses

Late Stone Age and Early Sami Iron Age Pithouses in Arctic Norway

Description

The morphology of 45 Arctic Norway pithouses is described in terms of 6 categorical variables.
Usage

data("PitHouses")

Format

A data frame with 45 observations on the following 6 variables.

Hearths  a factor with levels None, One, Two, and Charcoal Conc
Depth   a factor with levels Deep and Shallow
Size    a factor with levels Small, Medium, and Large
Form    a factor with levels Oval and Rectangular
Orient  a factor with levels Parallel Coast and Gabel Toward Coast
Entrance a factor with levels One Side, Front and One Side, and None

Details

Data on the morphology of pit houses from Arctic Norway described by Engelstad (1988). The data were scanned from Table A7 in Baxter (1994). The category labels are used rather than the numeric values listed in Table A7. The data represent the Group C pithouses as described in Engelstad (1988) which was more variable than groups A or B. The data were converted into an incidence matrix (Table A8 in Baxter (1994) and Table 3 in Englestad (1988)) and used in a multiple correspondence analysis.

Source


References


Examples

data(PitHouses)
# Crosstabulation of Hearths with Size
PitHouses.tbl <- xtabs(~Hearths+Size, PitHouses)
PitHouses.tbl
barplot(PitHouses.tbl, ylab="Frequency", main="Arctic Norway Pithouses", beside=TRUE, legend.text=TRUE, args.legend=list(title="Hearths"))
barplot(prop.table(PitHouses.tbl, 2)*100, ylim=c(0, 60), main="Arctic Norway Pithouses", ylab="Percent", beside=TRUE, legend.text=TRUE, args.legend=list(title="Hearths"))
Description

The concentrations for 11 major and minor elements in 105 Romano-British waste glass specimens from two furnace sites (Leicester and Mancetter).

Usage

data("RBGlass1")

Format

A data frame with 105 observations on the following 12 variables.

- **Site**: a factor with levels Leicester and Mancetter
- **Al**: Percentage Aluminum
- **Fe**: Percentage Iron
- **Mg**: Percentage Magnesium
- **Ca**: Percentage Calcium
- **Na**: Percentage Sodium
- **K**: Percentage Potassium
- **Ti**: Percentage Titanium
- **P**: Percentage Phosphorus
- **Mn**: Percentage Manganese
- **Sb**: Percentage Antinmony
- **Pb**: Percentage Lead

Details

The concentrations for 11 major and minor elements in 105 Romano-British waste glass specimens from two furnace sites (Leicester and Mancetter) come from Caroline Jackson's Ph. D. thesis at Bradford University. The data here were scanned from from Baxter (1994) Table A1. Measurements are percentage for each element.

Source


RBGlass2

References


Examples

data(RBGlass1)
RBGlass1.pca <- prcomp(RBGlass1[, -1], scale.=TRUE)
biplot(RBGlass1.pca, xlabs=abbreviate(RBGlass1$Site, 1), cex=.75)

RBGlass2

**Romano-British Glass, Trace Elements**

Description

The concentrations for 11 trace elements in 105 Romano-British waste glass specimens from two furnace sites (Leicester and Mancetter).

Usage

data("RBGlass2")

Format

A data frame with 105 observations on the following 12 variables.

- Site a factor with levels Leicester and Mancetter
- Ba Barium ppm
- Co Cobalt ppm
- Cr Chromium ppm
- Cu Copper ppm
- Li Lithium ppm
- Ni Nickel ppm
- Sr Strontium ppm
- V Vanadium ppm
- Y Yttrium ppm
- Zn Zinc ppm
- Zr Zirconium ppm
Details

The concentrations for 11 trace elements in 105 Romano-British waste glass specimens from two furnace sites (Leicester and Mancetter) come from Caroline Jackson’s Ph. D. thesis at Bradford University. The data here were scanned from Baxter (1994) Table A2. Measurements are parts per million (ppm) for each of 11 elements.

Source


References


Examples

```r
data(RBGlass2)
RBGlass2.pca <- prcomp(RBGlass2[, -1], scale.=TRUE)
biplot(RBGlass2.pca, xlabs=abbreviate(RBGlass2$Site, 1), cex=.75)
```

Description

Results of chemical analyses of 48 specimens of Romano-British pottery from 5 sites in 3 regions.

Usage

```r
data("RBPottery")
```
### Format

A data frame with 48 observations on the following 12 variables.

<table>
<thead>
<tr>
<th>ID</th>
<th>Sample ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kiln</td>
<td>Kiln: Gloucester, Llanedeyrn, Caldicot, Islands Thorns, and Ashley Rails</td>
</tr>
<tr>
<td>Region</td>
<td>Region: Gloucester, Wales, and New Forest</td>
</tr>
<tr>
<td>Al2O3</td>
<td>Percentage aluminum trioxide</td>
</tr>
<tr>
<td>Fe2O3</td>
<td>Percentage iron trioxide</td>
</tr>
<tr>
<td>MgO</td>
<td>Percentage magnesium oxide</td>
</tr>
<tr>
<td>CaO</td>
<td>Percentage calcium oxide</td>
</tr>
<tr>
<td>Na2O</td>
<td>Percentage sodium oxide</td>
</tr>
<tr>
<td>K2O</td>
<td>Percentage potassium oxide</td>
</tr>
<tr>
<td>TiO2</td>
<td>Percentage titanium dioxide</td>
</tr>
<tr>
<td>MnO</td>
<td>Percentage manganese oxide</td>
</tr>
<tr>
<td>BaO</td>
<td>Percentage barium oxide</td>
</tr>
</tbody>
</table>

### Details

Results of chemical analyses of 48 specimens of Romano-British pottery published by Tubb, et al. (1980). The numbers are the percentage metal oxide. "Kiln" indicates at which kiln site the pottery was found. The kiln sites come from three regions (1=Gloucester, 2=Llanedeyrn, 3=Caldicot, 4=Islands Thorns, 5=Ashley Rails). The data were scanned from Table 2.2 in Baxter (2003, p. 21) and preserve three probable typographical errors in the original publication. Those errors are the values for TiO2 in line 4 (sample GA4), for MnO in line 35 (sample C13), and for K2O in line 36 (sample C14). Versions of these data are also available as Pottery in package car, pottery in package HSAUR, and Pottery2 in package heplots.

### Source


### References


### Examples

```r
data(RBPottery)
print(aggregate(RBPottery[, -c(1:3)], list(Region=RBPottery$Region), mean), digits=2)
plot(Na2O~CaO, RBPottery, pch=as.numeric(Region)-1)
legend("topright", levels(RBPottery$Region), title="Region", pch=0:2)
```
Snodgrass

House pits at the Mississippian Snodgrass site in Butler County, Missouri, U.S.A.

Description

Information on the size, location and contents of 91 house pits at the Snodgrass site which was occupied between about CE 1325-1420.

Usage
data(Snodgrass)

Format

A data frame with 91 observations on the following 15 variables.

- `East` East grid location of house in feet (excavation grid system)
- `South` East grid location of house in feet (excavation grid system)
- `Length` House length in feet
- `Width` House width in feet
- `Segment` Three areas within the site 1, 2, 3
- `Inside` Location within or outside the "white wall" Inside, Outside
- `Area` Area in square feet
- `Points` Number of projectile points
- `Abraders` Number of abraders
- `Discs` Number of discs
- `Earplugs` Number of earplugs
- `Effigies` Number of effigies
- `Ceramics` Number of ceramics
- `Total` Total Number of artifacts listed above
- `Types` Number of kinds of artifacts listed above

Details

The data from 91 house pits at the Snodgrass site were reported by Price and Griffin in 1979. The layout of the houses follows a grid pattern with the long axis oriented northeast surrounded by a fortification trench. There is also evidence of an interior wall that may have separated the houses inside that wall from those outside the wall. Price and Griffin use differences in house size and artifact composition to suggest that those differences may have reflected rank differences between the occupants of the two areas. That conclusion has been questioned on a number of grounds by Cogswell, et al (2001), but the data are still useful for illustrating a number of quantitative methods. The data come from the appendices except for the house locations which were estimated from the base map in Figure 10 (Price and Griffin 1979).
Source

References

Examples
```r
data(Snodgrass)
plot(~South-East, Snodgrass, main="Snodgrass Site", pch=as.numeric(Inside)+4, asp=1)
legend("topleft", levels(Snodgrass$Inside), pch=5:6)
boxplot(Area~Inside, Snodgrass)
```

TRBPottery

*Neolithic TRB Pottery from Demark*

Description
Measurements at 8 landmarks along one side of 118 Neolithic TRB (Trichterrandbecherkultur, Funnelneckbeaker culture) pottery vessels representing 3 different groups.

Usage
data("TRBPottery")

Format
A data frame with 118 observations on the following 17 variables.

*Form* a factor with levels Funnel beakers, Bowls, and Flasks
AX Point 1, x
AY Point 1, y
BX Point 2, x
BY Point 2, y
CX Point 3, x
CY Point 3, y
DX Point 4, x
DY Point 4, y
EX Point 5, x
The data are based on a study by E. K. Nielsen (1983) of Neolithic Pottery of 135 complete pots. The measurements are taken at landmarks identified along the profile of each pot (see Madsen, 1988 Figure 5). The data were reanalyzed by Madsen (1988). Baxter (1994) reanalyzed the data using several different methods. The data were scanned from Table 1 in Madsen (1988, p. 18) which included only 118 pots.

Source


References

Examples
```r
data(TRBPottery)
TRBPottery.frm <- aggregate(TRBPottery[, -1], list(Form=TRBPottery$Form), mean)
Xvals <- TRBPottery.frm[, seq(2, 16, by=2)]
Yvals <- TRBPottery.frm[, seq(3, 17, by=2)]
matplot(t(Xvals), t(Yvals), xlab="X", ylab="Y", type="l", asp=1, las=1, col="black", lwd=2)
legend("topleft", levels(TRBPottery$Form), lty=1:3, col="black", lwd=2)
```
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