

mammals

package:MASS

R Documentation

Brain and Body Weights for 62 Species of Land Mammals

Description:

A data frame with average brain and body weights for 62 species of land mammals.

Usage:

```
mammals
```

Format:

'body' body weight in kg

'brain' brain weight in g

'name' Common name of species. Rock hyrax-a = *Heterohyrax
brucii*. Rock hyrax-b = *Procavia habessinica*.

Source:

Weisberg, S. (1985) *Applied Linear Regression*. 2nd edition. Wiley, pp. 144-5.

Selected from: Allison, T. and Cicchetti, D. V. (1976) Sleep in mammals: ecological and constitutional correlates. *Science* **194**, 732-734.

References:

Venables, W. N. and Ripley, B. D. (1999) *Modern Applied Statistics with S-PLUS*. Third Edition. Springer.

onto main event; associations among measured variables,
correlation coefficients (measures of linear association)

Cow	465.000	423.00
Grey wolf	36.330	119.50
Goat	27.660	115.00
Roe deer	14.830	98.20
Guinea pig	1.040	5.50
Verbet	4.190	58.00
Chinchilla	0.425	6.40
Ground squirrel	0.101	4.00
Artic ground squirrel	0.920	5.70
African giant pouched rat	1.000	6.60
Lesser short-tailed shrew	0.005	0.14
Star-nosed mole	0.060	1.00
Nine-banded armadillo	3.500	10.80
Tree hyrax	2.000	12.30
N.A. opossum	1.700	6.30
Asian elephant	2547.000	4603.00
Big brown bat	0.023	0.30
Donkey	187.100	419.00
Horse	521.000	655.00
European hedgehog	0.785	3.50
Patas monkey	10.000	115.00
Cat	3.300	25.60
Galago	0.200	5.00
Genet	1.410	17.50
Giraffe	529.000	680.00
Gorilla	207.000	406.00
Grey seal	85.000	325.00
Rock hyrax-a	0.750	12.30
Human	62.000	1320.00
African elephant	6654.000	5712.00
Water opossum	3.500	3.90
Rhesus monkey	6.800	179.00
Kangaroo	35.000	56.00
Yellow-bellied marmot	4.050	17.00
Golden hamster	0.120	1.00
Mouse	0.023	0.40
Little brown bat	0.010	0.25
Slow loris	1.400	12.50
Okapi	250.000	490.00
Rabbit	2.500	12.10
Sheep	55.500	175.00
Jaguar	100.000	157.00
Chimpanzee	52.160	440.00
Baboon	10.550	179.50
Desert hedgehog	0.550	2.40
Giant armadillo	60.000	81.00
Rock hyrax-b	3.600	21.00
Raccoon	4.288	39.20
Rat	0.280	1.90
E. American mole	0.075	1.20
Mole rat	0.122	3.00
Musk shrew	0.048	0.33
Pig	192.000	180.00
Echidna	3.000	25.00
Brazilian tapir	160.000	169.00
Tenrec	0.900	2.60
Phalanger	1.620	11.40
Tree shrew	0.104	2.50
Red fox	4.235	50.40

>

```

> data(mammals)
> summary(mammals)
      body          brain
Min.   : 0.005   Min.   : 0.14
1st Qu.: 0.600   1st Qu.: 4.25
Median : 3.342   Median : 17.25
Mean   : 198.790 Mean   : 283.13
3rd Qu.: 48.203 3rd Qu.: 166.00
Max.   :6654.000 Max.   :5712.00

```

both distrib strongly skewed right

```

> attach(mammals)
> cor(body, brain)
[1] 0.9341638

```

product-moment correlation, very high

```

> plot(body, brain, pch = 20) # diamond
> plot(0:25, pch= 0:25)
> plot(log(body), log(brain), pch = 20)
> cor(log(body), log(brain))
[1] 0.9595748

```

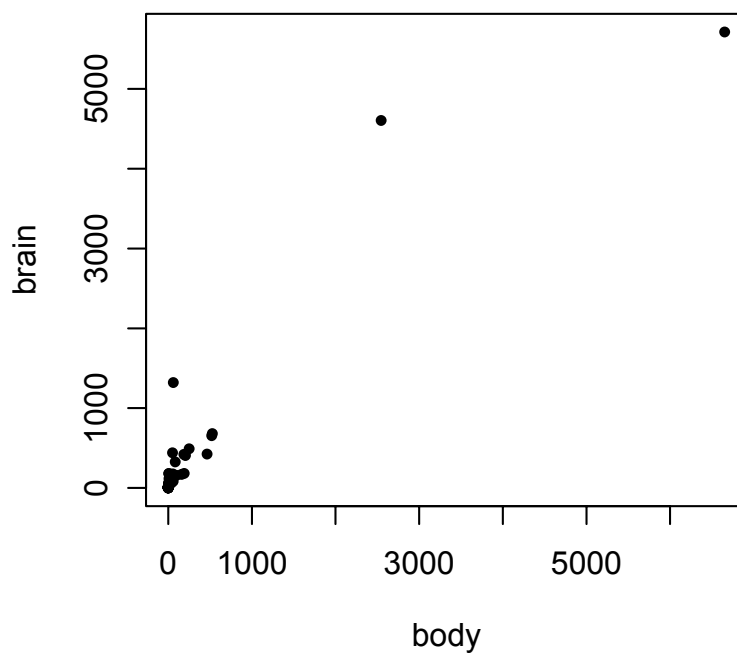
always look at the plot

log transformation gives a better picture

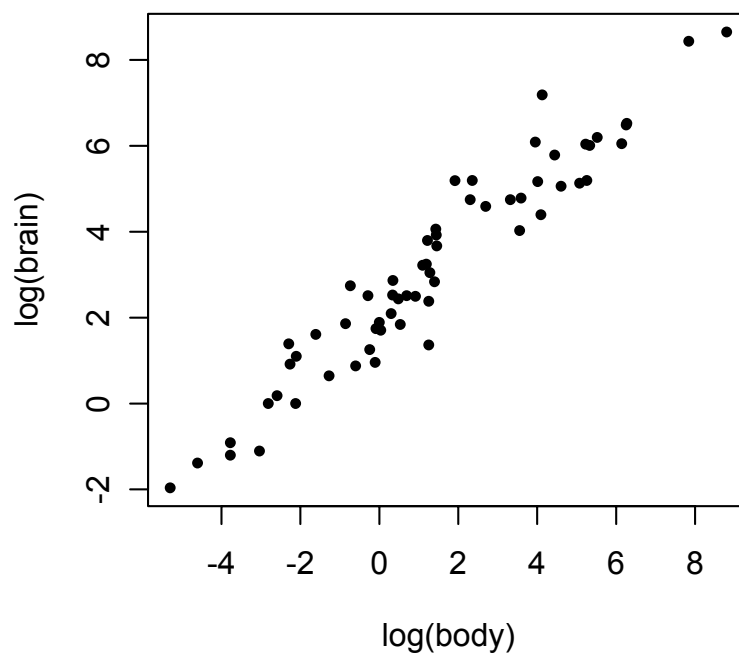
see pdf of plot char, "pch"

SW sample product-moment correlation and scatterplots pp.555-6

mammals kg, g plot
not very informative



mammals with log transformation



later, transformations to straighten scatterplots, Rule of Bulge