Linear versus Log Scales and Log Tranformations
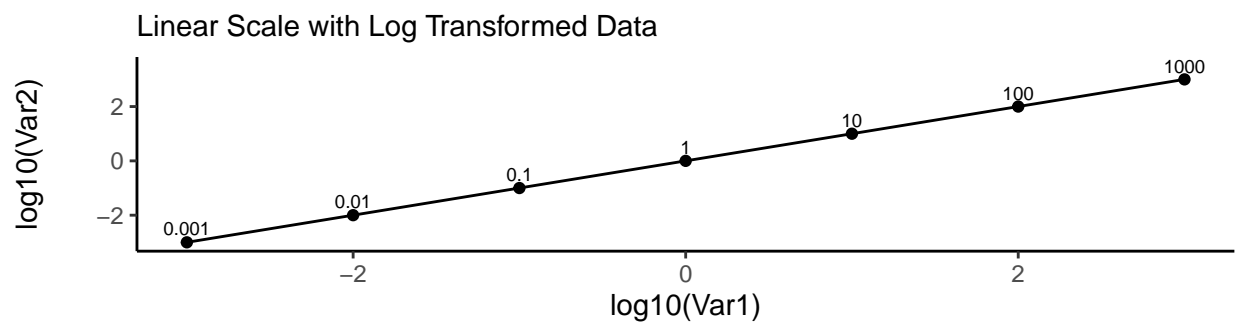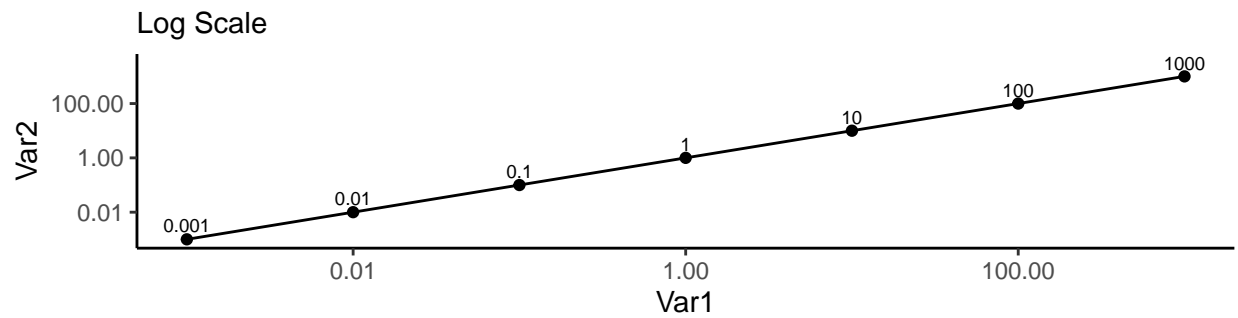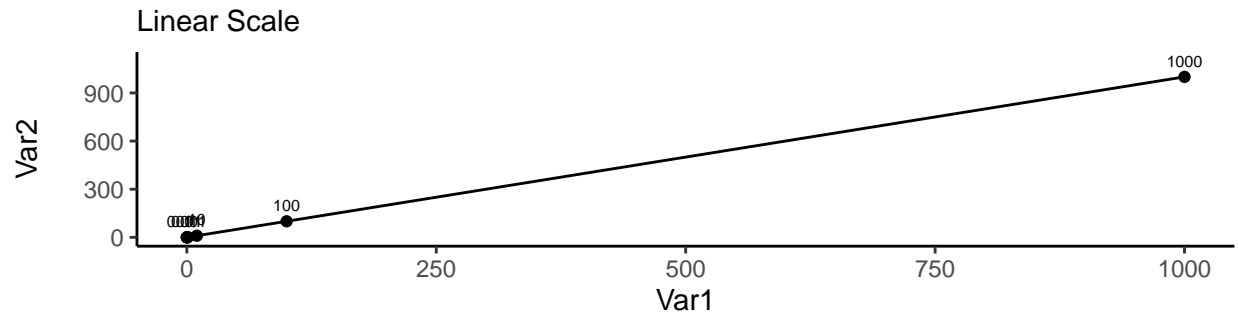
1/31/2023

Synthetic Data

```
##         Var1       Var2 logVar1 logVar2
## 1      0.001      0.001      -3      -3
## 2      0.010      0.010      -2      -2
## 3      0.100      0.100      -1      -1
## 4      1.000      1.000       0       0
## 5     10.000     10.000       1       1
## 6    100.000    100.000       2       2
## 7   1000.000   1000.000       3       3
```

Experimental Data

Supporting information for White and Seymour (2003) Proc. Natl. Acad. Sci. USA, 10.1073/pnas.0436428100

```
##      Family                   Species  Mass Temp   BMR   BMR/Mass
## 1    Cervidae            Alces alces 325000 38.6 51419  0.1582123
## 2    Cervidae Odocoileus virginianus  58588 39.0 25609  0.4371032
## 3 Tayassuidae           Pecari tajacu  20500 37.5  5945  0.2900000
## 4      Canidae          Alopex lagopus   3600 38.6  1374  0.3816667
## 5      Canidae            Canis latrans  10000 37.0  2687  0.2687000
## 6      Canidae          Canis mesomelas   7720 38.0  3860  0.5000000
```

```
##      Family                        Species Mass Temp  BMR BMR/Mass
## 206 Muridae    Phyllotis darwini darwini 59.0 36.2 71.4 1.210169
## 207 Muridae Phyllotis darwini rupestris 36.0 37.1 45.4 1.261111
## 208 Muridae          Phyllotis xanthopygus 55.0 37.3 56.7 1.030909
## 209 Muridae     Pseudomys gracilicaudatus 79.8 36.8 83.8 1.050125
## 210 Muridae Pseudomys hermannsburgensis 12.2 37.8 23.3 1.909836
## 211 Muridae              Rattus fuscipes 76.0 37.5 84.4 1.110526
```