# Bilance a bilanční dendrogram kompozičních dat

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# Data

| Výdaje | | | | | | | |
|---|---|---|---|---|---|---|---|
| Bydl. | Strava | Tel. | Kultur. | Zdraví | Oděv | Spoření | Doprava |
| 2800 | 2000 | 600 | 1600 | 300 | 600 | 1000 | 300 |
| 3000 | 4500 | 350 | 600 | 500 | 1500 | 5000 | 300 |
| 3000 | 2000 | 500 | 2000 | 200 | 500 | 2000 | 200 |
| 2200 | 2500 | 500 | 400 | 300 | 500 | 300 | 1000 |
| 8000 | 5000 | 1500 | 1000 | 400 | 1000 | 2000 | 3000 |
| 9000 | 7000 | 500 | 2500 | 500 | 1000 | 500 | 600 |
| 6000 | 2000 | 1000 | 1000 | 1000 | 1000 | 2000 | 4000 |
| 2800 | 2000 | 500 | 800 | 1000 | 1000 | 4000 | 300 |
| 2600 | 2500 | 600 | 1500 | 500 | 1000 | 500 | 500 |
| 4500 | 2500 | 750 | 400 | 1000 | 1000 | 1600 | 400 |

## Bilance

$$z_i = \sqrt{\frac{rs}{r+s}} \ln \frac{\left(\prod_{j=1}^{r} x_j\right)^{1/r}}{\left(\prod_{j=r+1}^{r+s} x_j\right)^{1/s}}, i = 1, \ldots, D-1$$

| Krok | $x_1$ | $x_2$ | $x_3$ | $x_4$ | $x_5$ | $x_6$ | $x_7$ | $x_8$ |
|------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | + | + | − | − | + | − | − | + |
| 2 | + | + | 0 | 0 | − | 0 | 0 | − |
| 3 | + | − | 0 | 0 | 0 | 0 | 0 | 0 |
| 4 | 0 | 0 | 0 | 0 | + | 0 | 0 | − |
| 5 | 0 | 0 | − | − | 0 | − | + | 0 |
| 6 | 0 | 0 | − | + | 0 | − | 0 | 0 |
| 7 | 0 | 0 | + | 0 | 0 | − | 0 | 0 |

$$z_1 = \sqrt{2} \ln \frac{(x_1 x_2 x_5 x_8)^{1/4}}{(x_3 x_4 x_6 x_7)^{1/4}}$$

$$z_2 = \ln \frac{(x_1 x_2)^{1/2}}{(x_5 x_8)^{1/2}}$$

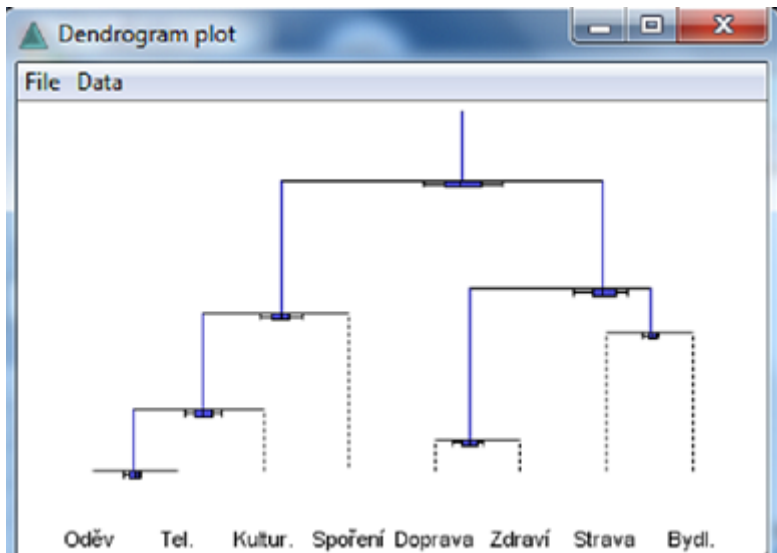$$z_3 = \sqrt{\frac{1}{2}} \ln \frac{x_1}{x_2}$$

$$z_4 = \sqrt{\frac{1}{2}} \ln \frac{x_5}{x_8}$$

$$z_5 = \sqrt{\frac{3}{4}} \ln \frac{x_7}{(x_3 x_4 x_6)^{1/3}}$$

$$z_6 = \sqrt{\frac{2}{3}} \ln \frac{x_4}{(x_3 x_6)^{1/2}}$$

$$z_7 = \ln \frac{x_3}{x_6}$$

# Bilanční dendrogram

## Literatura

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