Correspondence Analysis

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aka: Dual Scaling, Reciprocal Averaging; Qualitative Correlation ...

<u>Independent 'discovery'</u>

Hotelling 1933; Guttman 1941, Benzécri 1973; Lebart 1984; Greenacre 1984; Blasius 1994

$$\delta_{jk} = \chi^2_{jk} = L(d_{jk})$$

DATA (2-way, 2mode TABLE)

⇒(decomposed into)

[row-co-ordinates] [column co-ordinates]

- **comparable WITHIN**
- **only comparable BETWEEN by Projection.**

- **Analysis is row-conditional**

  (each row is <u>profile</u> so $\sum_i x_{i.} = 1.0$ **)**

  (Or can be chosen to be column-conditional)

  ... or even doubly-conditional.

HYPOTHETICAL DISTRIBUTION OF SEATS

IN EUROPEAN PARLIAMENT (Groenen & Gifi 1989)

	CD	*SOC*	*OTHER*	*Sum*
Belgium	8	9	7	24
Germany	39	30	6	75
Italy	25	11	39	75
Luxemburg	3	2	2	6
Netherlands	13	10	2	25
Sum	88	62	55	205

BECOMES >>> (FOR C.A. ANALYSIS)

	CD	*SOC*	*OTHER*	*Sum*
Belgium	.33	.38	.29	1.0
Germany	.52	.40	.08	1.0
Italy	.33	.15	.52	1.0
Luxemburg	.50	.33	.17	1.0
Netherlands	.52	.40	.08	1.0
Mean profile	.43	.30	.26	1.0

PERFECT SOLUTION:

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o Christian Democrat

 # #Lux + #Italy

Germany &
Netherlands # Belgium

o Other

o Socialist

- you can compare distances between countries (rows)
- you can compare distances between parties (columns)
- you CANNOT directly compare distances BETWEEN countries and parties (*except by projection*)
- centroid (+) is the "average country"
- equality of profiles = zero distance (identity: cf Ger. & Neth.)
- "inertia" is (goodness) of fit measure (=%VAF)

HOW TO COMPARE ROWS & COLUMNS

... *Projection of points on a vector (cf Pro-fit, MDPREF)*

- draw vector from column point through origin
- project row points on to vector (reproduces profile)
- angular separation denotes similarity between profiles/cols.