



Growing
ideas
through
networks

Examples of vegetation plots ordination

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ORDINATION OF VEGETATION

"Ordination primarily endeavors to represent sample and species relationships as faithfully as possible in a low-dimensional space"

Gauch (1982)

Detrended correspondence analysis (DCA) is an ordination technique used for describing of patterns in complex data sets. It ordinales samples and species simultaneously.

Gauch (1982); ter Braak (1986)

Non-free computer software

CANOCO : a program written by *Cajo ter Braak* for numerous ordination techniques

CANODRAW : a program written by *Petr Šmilauer* to graph the results of CANOCO. No longer in use, because its functionality is integrated with CANOCO 5.0

PC-ORD : a program written by *Bruce McCune* suitable for a variety of ordination and classification methods

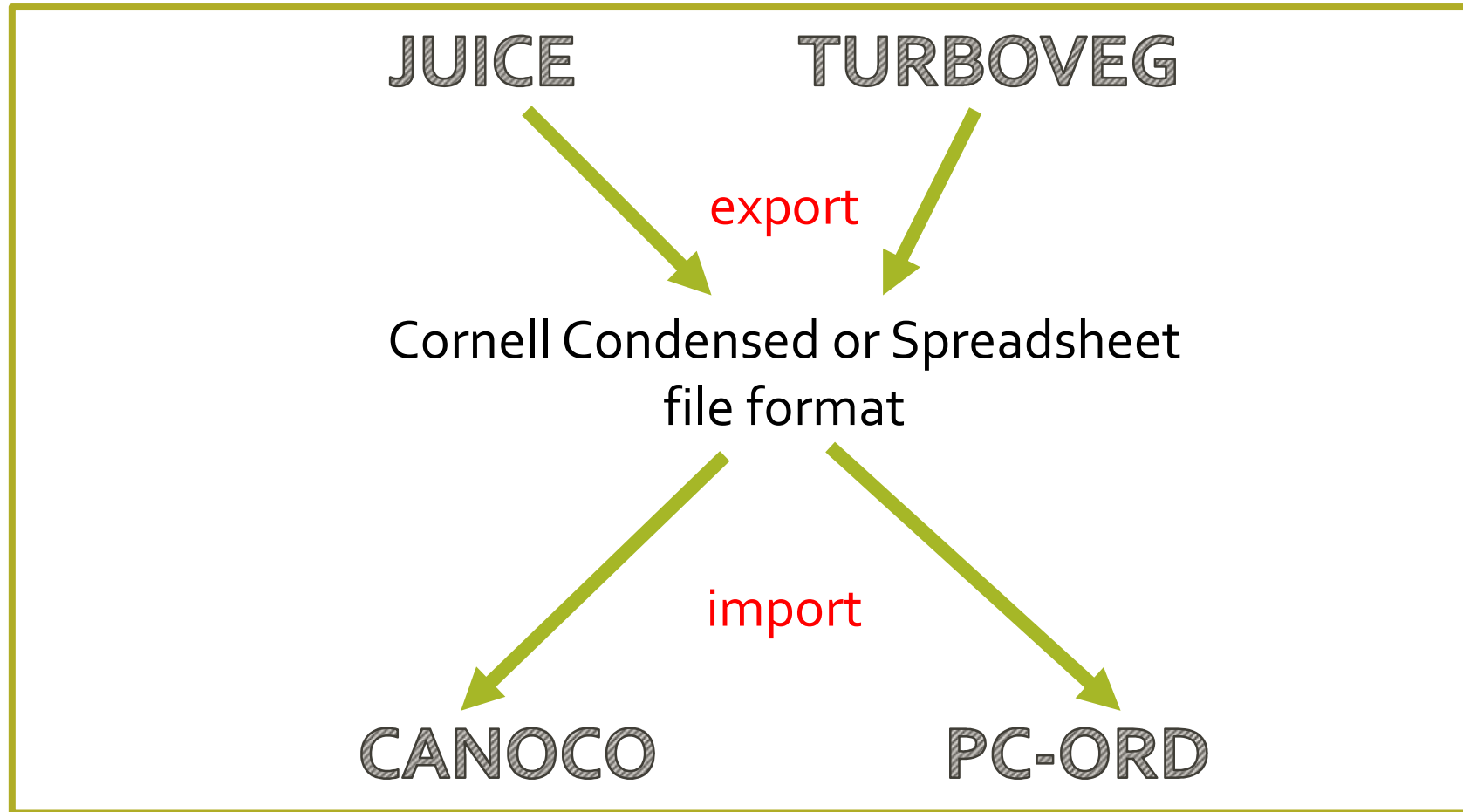
Free computer software

R : a software environment for statistical computing and graphics

JUICE : a program written by L. Tichý for editing and analysing of phytosociological data

CANOCO and **R** could be used for ordination as a stand alone applications or through the interface of **JUICE** program. **PC-ORD** is also connected with **JUICE** but for classification techniques only.

One possible way



Another possible and very easy way

Making of ordination diagrams by **CANOCO** or **R**
using the **JUICE** interface

There is no need of “export - import” procedures

ELLENBERG INDICATOR VALUES

Ellenberg Indicator Values (EIVs) were prepared for bioindication and first applied to the flora of Germany. They are used for interpretation and understanding of plant communities.

Ellenberg (1974)

EIVs were derived empirically on field and reflect the species ecological optima. They can provide information on the vegetation environmental conditions without the need of field measurements.

Diekmann (2003)

EIVs are available for several Central and Western European countries also, which have large number of species in common and similar latitudinal distribution.

Schwabe & al. (2007)

The EIVs application in other geographical areas was debated for the few species shared and the different species ecological requirements across their distribution areas.

Hill & al. (2000); Godefroid & Dana (2007)

"Ellenberg indicator values can be used as a numerical system to classify species' habitat niches and their peak occurrence along gradients."

Bartelheimer & Poschlod (2015)

Traditionally **Ellenberg Indicator Values** relate to a 9-point scale for 6 gradients

Environmental Factor	Symbol	Indicator value, in the sense of "the species prefer..."
Light value	L	1=deep shade, 5=semi-shade, 9=full light
Temperature value	T	1=alpine-subnival, 5=submontane-temperate, 9=Mediterranean
Continentality value	K	1=euroceanic, 5=intermediate, 9=eucontinental
Moisture value	F	1=strong soil dryness, 5=moist, 9=wet, 10=aquatic, 12=underwater
Reaction of soil value (PH)	R	1=extremely acidic, 5=mildly acidic, 9=alkaline
Nitrogen value	N	1=least, 5=average, 9=excessive supply
Salinity value	S	0=no, 1=weak, 5=average, 9=extreme salinity

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Now let's try some practicals

