

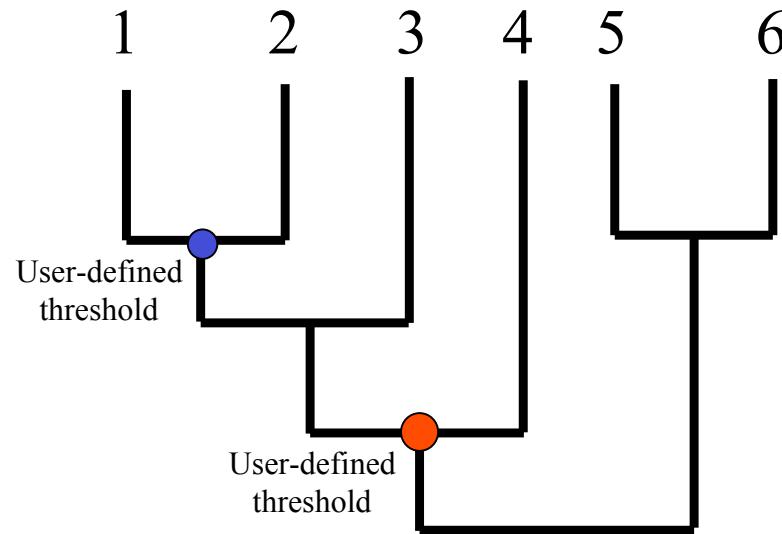
A feeling of the notions of “basic” and “combined” impossibility

A “basic” impossibility: ●

(1,2) are not with (3,4,5,6)

which we deduce from:

** > user defined threshold ●



A “combined” impossibility: ● + ●

(1,2) are not with (5,6)

which we deduce from the comparison of multiple bipartitions:

** > user defined threshold ●

and

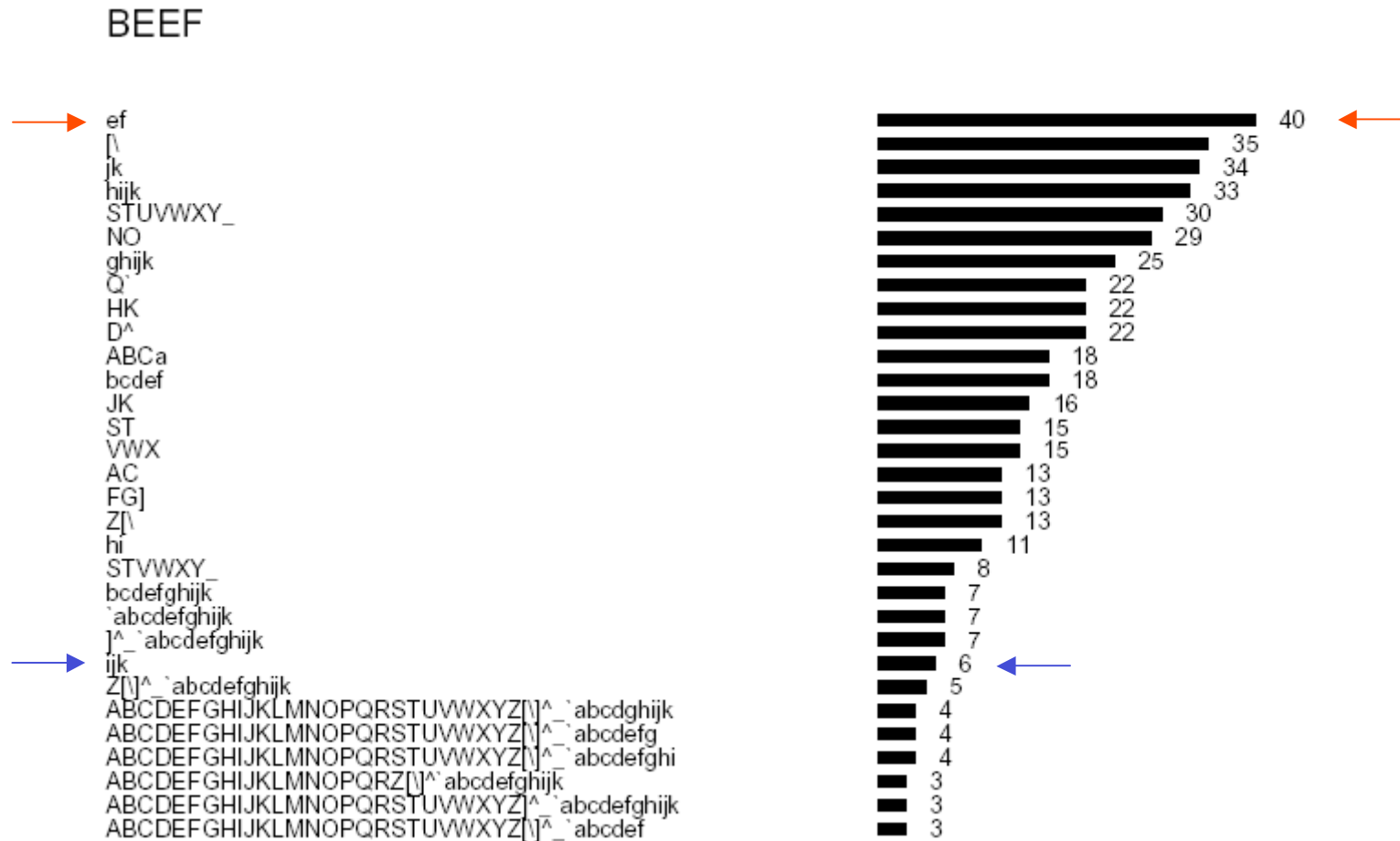
**** . . > user defined threshold ●

An example of an impossibility diagram



The ‘-’ split two sets of organisms that should not be grouped together
The darker the square the most unlikely the relationship is
No square: the relation is possible according to that gene

An example of a group-group diagram



The relationship between **ef** is the most rejected. Its arbitrary degree of impossibility is of 40
ijk by contrast is only weakly rejected (6) over all the bipartitions with a support larger than
 a user defined threshold.

An example of a species-group diagram

Z PIG

[3
VWX	3
ST	3
bcdef	3
STUVWXY_	3
D^	2
bcdefghijk	2
Q`	2
]^_`abcdefghijkl	2
`abcdefghijkl	2
HK	2
ABCa	2
hi	1
ABCDEFGHIJKLMNOPQRSTUVWXYZ	1
INO	1
ABCDEFGHIJKLMNOPQR	1
AC	1
STVWXY_	1
ABCDEFGHIJKLMNOPQRSTUVWXYZ]^_`abcdefghijkl	1
ijk	1
FG]	1
ABC	1

The impossibility grouping of the species “Z” within any of the listed group receives a certain value.

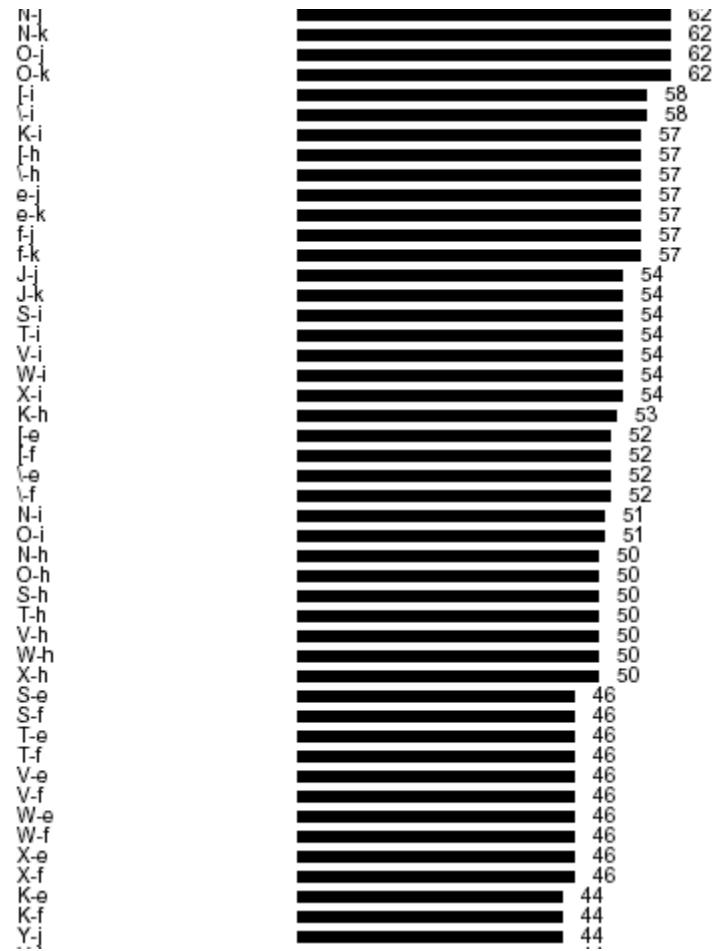
The higher the number the most rejected the relationship.

That way it is easy to evaluate for a species of interest with which other it would not group.

(PIG stand for pairwise impossible grouping)

An example of a pairwise impossibility diagram

OAT



The larger the value the least closely related the species are