Quartile index for research results

As long as articles in a journal are cited, one can define the average citation of that journal's articles. This is referred to as ***impact factor*** (IF). The more citations, the higher the impact factor of a journal. Impact factor is a probabilistic assessment of the demand of a journal by the scientific community. However, traditionally there has been a dramatic difference between average citation figures in various fields of science. Thus, IF=2 may denote a high level of a cited journal in one field and a low level of a journal in another field of science. To avoid this field inequality of estimates, the ***quartile*** tool to compare journals in any field had been invented. All journals are divided into ***subject categories*** and impact factors of journals are compared **within** the given category. The highest 25% of IFs is the first guartile (Q1), the next 25% of IFs is the second one (Q2) and so on.

Quartile index for research results or ***Q-index*** (***Qi***) is defined on the basis of quartiles of the journals in which articles containing this result were published.

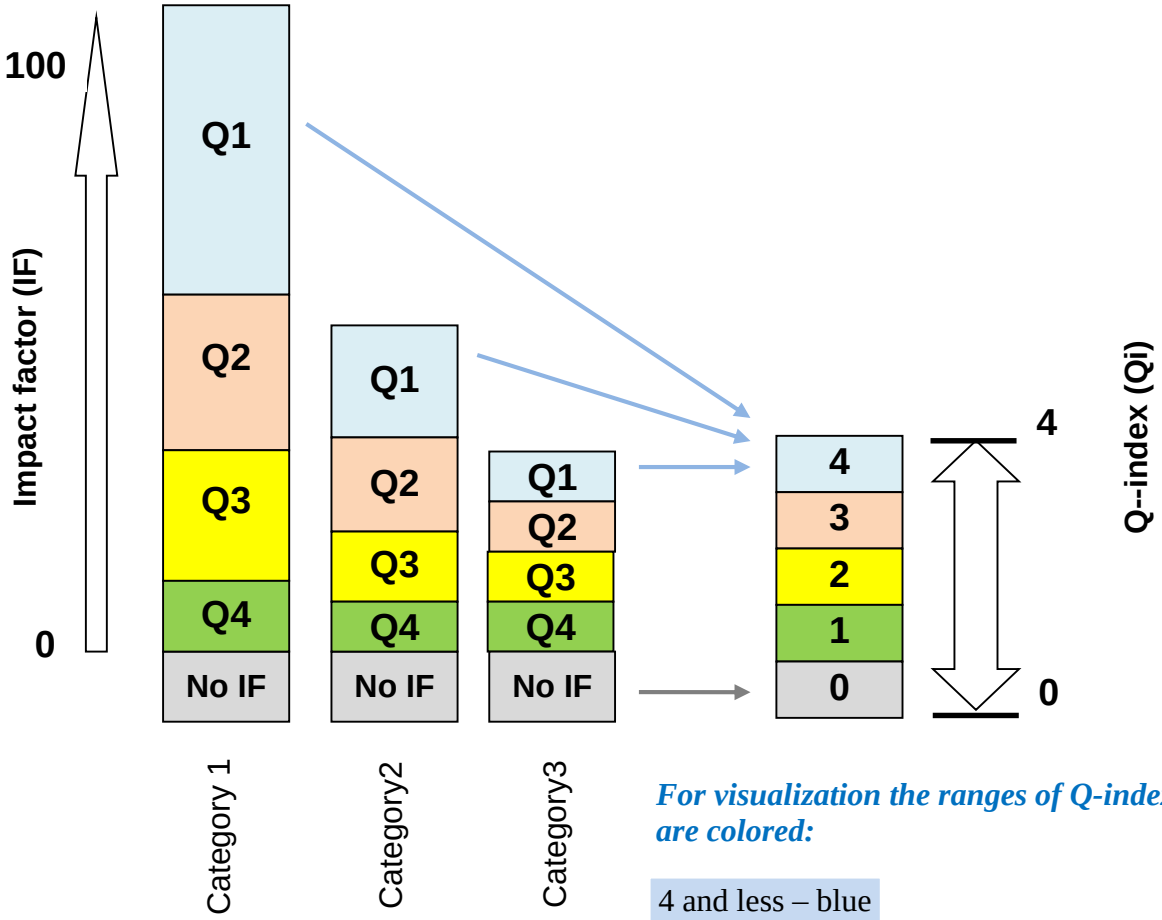
As the journal may be included in several categories and may be indexed there in different quartiles, the Q-index includes the result of averaging of the journal quartiles. As the result may be representatively reflected only in several articles, the Q-index contains the results of the averaging procedure of those articles by quartiles. To be the simplest increasing function of quality, the Q-index calculation algorithm should have the following form:

$$Qi = 5 - \langle\langle Q\rangle_i\rangle_n ,$$

where Q is the quartile number (or 5 if the journal has no quartile estimation), $\langle Q\rangle_i$ denotes average processing by quartiles of the journal and $\langle\ldots\rangle_n$ denotes the same procedure by mean quartiles of the representative articles.

The Qi estimation can be applied not only to results but also to articles, authors and organizations.

The comparison between impact-factors, quartiles and Q-indexes can be illustrated by the following scheme:



For visualization the ranges of Q-index are colored:

4 and less – blue

3 and less – orange

2 and less – yellow

1 and less – green

0 – grey

Each range can be divided into "high" (1÷0.67), "medial" (0.66÷0.34) and "low" (0.33÷0) ranges.