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**Evaluation of the food-rationality-trend in Hungary based on FAO-data**

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**Abstract**

History: The AI-based, automated trend analysis is a central topic of the interinstitutional and transdisciplinary-oriented MY-X research team (c.f. <https://miau.my-x.hu/miau2009/index.php3?x=e0&string=golden>, <https://miau.my-x.hu/miau2009/index.php3?x=e0&string=food>). The focus of the own experiments is the optimized anti-discrimination or term-creation-oriented evaluation process based on stair-case function in frame of self-validating similarity analyses – because of their context-free characteristics.

Background and benchmarks: Aggregation of parallel force fields (e.g. food-components) can be made seemingly in a trivial way: the gram/day/capita values might namely be added. But the equivalences between 1 unit alcohol and 1 unit wheat are not given in an objective way. On the other hand: there are food-elements (e.g. alcohol, sugar, etc.) where the literature gives signals concerning their disadvantages compared to other (more useful) products (like fruits, vegetables, etc.) Therefore, the objectivity/optimization-oriented aggregation of diverse inputs needs special mathematics.

The FAO delivered for 1961-2013 the daily average consumption of different food-elements for all countries of the world. This made possible to derive a food-rationality-trend – as example for Hungary and Türkiye.

Highlighted details: The case—study about Hungary needed the definition of advantageous and disadvantageous food-element. The aggregation was created in form of an anti-discriminative optimization, where the hypothesis was: can we evaluate the rationality of the food-consumption for each year in case of a given country as the same or not?

The hypothesis has been proved based on a lot of intuitive/not-optimized techniques and with the optimized antidiscriminative modelling tool where the analyses need in general more than one run if the number of the food-components (attributes) are more than the number of the years (objects). This filtering technique makes possible to concentrate on the relevant attributes.

The optimized solution could also be validated based on the symmetry of the staircase functions.

The results (HU): The food-rationality-trend for Hungary from 1961 ca. to 2008 (ca. to the economical crisis) is increasing and later decreasing. The first observed period (ca. till the change of the political system) is relative stable, but the last period shows more and more relevant changes in the rationality index year by year.

The results (TR): The food-rationality-trend for Türkiye from 1961 ca. to 1987 is decreasing and later increasing. The first observed period (1979) is relative stable, but the last period shows more and more relevant changes in the rationality index year by year.

Future aspects: After closing the manual-driven test-cases, the entire evaluation process will be automated in frame of a bachelor's degree/thesis and the software will be available to access as a web application.