Development of smart traffic evaluation- and influence-modules  
based on non-declarative rules of artificial intelligence

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**Abstract**

*The paper delivers a mid-term report about a Hungarian GINOP-project, where the objectives are: development of a new methodology for evaluation and smart influence of traffic based on artificial intelligence. The basic pillars of the project are from KNUTH (1992: Science is what we understand well enough to explain to a computer. Art is everything else we do.), and from BOSTROM (2015: …we should work out a solution to the control problem in advance…). The online engine for artificial intelligence is a product of a Hungarian INNOCSEKK project (2006-2009) – prized two times (2012ITBN, 2014HUNINNO) in frame of its applications. The similarity analysis as such in the background of artificial intelligence is capable to support lateral thinking. Therefore the problems of evaluation and influence of traffic can be handled without classic physics – based on the behaviour patterns of moving objects. Similarities make it possible to derive non-declarative rules like strategical directions for smart influence of traffic constellations. And also similarities ensure an anti-discriminative, multi-layered evaluation in an automated way, where evaluation is the input for control simulations about traffic alternatives. The first results show, that the anti-discriminative evaluation can involve arbitrary components like moving, stopping, accelerating, and/or environmental variables incl. emissions, noises, etc. The aggregated evaluation can be derived for the entire traffic system and/or also for its parts. The smart influence of traffic aiming a better evaluation value in the future involves the time series of the evaluation module and it derives parallel models being able to estimate the next aggregated evaluation value of traffic. The staircase functions of the models make it possible to derive effective and efficient strategies in form of preferred direction of traffic lights. The results can be checked concerning their consistence (logical connections). The next challenges in the project will be the estimation of the consistence of traffic to explore the most instable variables and the development of models being capable of deriving connection (production functions) between variables. The project involves researchers from the disciplines of social sciences in order to add multidisciplinary approach and a high level of socio-economical view to the goals and also to the execution of the project. It is nice to percept their affection on the set of goals, and on the more abstract ideas to be achieved with the mathematical an AI model like competitive advantage, added value or the phenomenon of smart products. It is revelation to be able to observe the way how an R+D project fits to the Industry 4.0 paradigm and the Smart City, Smart Transportation, Smart Metering ideas from a helicopter view. Our paper will reflect on both the mathematical and the socio-economical approach highlighting the result of their symbiosis.*

**Keywords:** behaviour pattern, evaluation, strategy, automation, similarity analysis

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