

POTENTIAL METHOD APPLIED ON EXACT DATA

LAVOSLAV ČAKLOVIĆ AND VEDRAN ŠEGO

ABSTRACT. Although PM was basically created to treat subjective comparisons, given exact values can be converted to Potential Method flow. A new feature of PM is a parameter called *FlowNorm* which helps to treat problems where each criterion has its own measurement scale.

Complex hierarchial structures and problems modelled by decision tables can be handled. Incomplete data, such as incomplete belief, is considered as well. To illustrate the flexibility and universality of PM we compare it with PROMETHEE and Yang's Evidential Reasoning method.

REFERENCES

- [BeGe] V. Belton, T. Gears, (1981) *On a short-coming of Saaty's method of analytic hierarchy*. OMEGA International Journal of Management Science Vol.11, No.3, 228-230.
- [BrMa] J-P. Brans, B. Mareschal, (1994) *How to Decide with PROMETHEE*, Universit Libre de Bruxelles, <http://homepages.ulb.ac.be/~bmaresc/PromWeb.htm>
- [Ca] L. Čaklović, *Decision Making via Potential Method*, preprint
- [CaPiSe] L. Čaklović, R. Piskač, V. Šego: *Improvement of AHP method*, Mathematical Communications, Vol.1(2001), 13–21
- [HwYo] C. L. Hwang and K. Yoon, *Multiple attribute decision making Methods and applications. A state-of-the-art survey*. Lecture Notes in Economics and Mathematical Systems, 186., Springer, Berlin, 1981.
- [Jo] Johnson, C.R., Beine, W.B., Wang, T.J., (1979) *Right-left asymmetry in an eigenvector ranking procedure*. Journal of Mathematical Psychology Vol.19, 61-64.
- [Sa] T. L. Saaty, (1996) *The Analytic Hierarchy Process*, RWS Publications, Pittsburg
- [St] D. Stančer, (2001) *Analitički hijerarhijski postupak*. Bachelor theses, Univ. of Zagreb, p. 62
- [Ya] Yang, Jian-Bo: (2001) Rule and utility based evidential reasoning approach for multiattribute decision analysis under uncertainties. *European J. Oper. Res.* Vol.131, No.1, p. 31–61.
- [YaSi] Yang, J.B. and Singh, M.G., (1994) An evidential reasoning approach for multiple attribute decision making with uncertainty. *IEEE Transactions on Systems, Man, and Cybernetics* Vol.24, No.1, p. 1–18.

E-mail address: Lavoslav Čaklović <caklovic@math.hr>

E-mail address: Vedran Šego <vsego@math.hr>

PMF MATEMATIČKI ODJEL, BIJENIČKA 30, 10000 ZAGREB, CROATIA

Key words and phrases. analytical hierarchy process, multi-criteria decision problem, decision, decision table, exact values.