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Erratum

Nucleoli as maximizers of collective satisfaction functions

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Theorems 2.9 and 2.10 in Sudhölter and Peleg (1998) are incorrect. Indeed, the following examples show that the maximal satisfaction solution $\mathscr{M}$ does not satisfy NPP and, thus, does not satisfy REAS.

Example 1. Let $N = \{1, 2, 3, 4\}$

(1) Let (N, v) be defined by

$$v(S) = \begin{cases} 0, & \text{if } |S \cap \{2,3,4\}| \leq 2 \\ 4, & \text{if } |S \cap \{2,3,4\}| = 3 \end{cases}.$$

Then player 1 is a nullplayer and $(1, 1, 1, 1) \in \mathscr{M}(v)$, which can be checked by applying Theorem 2.2 of Sudhölter and Peleg (1998). This example shows that $\mathscr{M}$ does not satisfy NPP and that it does not satisfy the second inequality required by REAS.

(2) Let (N, v) be defined by

$$v(S) = \begin{cases} 0, & \text{if } |S \cap \{2,3,4\}| \leq 1 \\ 8, & \text{if } |S \cap \{2,3,4\}| \geq 2 \end{cases}.$$

Then player 1 is a nullplayer and $(-1, 3, 3, 3) \in \mathscr{M}(v)$, which can be checked again by applying Theorem 2.2. This example shows that $\mathscr{M}$ does not satisfy the first inequality required by REAS.

Remark 2: All other results of Sudhölter and Peleg (1998) remain valid. However, in the proof of Theorem 2.12 the reference "Theorem 2.10" has to be replaced by "the proof of Theorem 2.6". Moreover, in the first paragraph after Theorem 3.2, "$-1 \leq v(S \cup \{i\}) - v(S) \leq 1$ for $S \subseteq N \setminus \{i\}$" has to be replaced by "$-1 \leq x_i \leq 1$ for $x \in \mathscr{M}(v)$". Finally, in the same paragraph as well as in the first sentence of the proof of Theorem 4.2, "Theorem 2.10" and

"$\{x \in X(v) \mid x$ is reasonable$\}$" have to be replaced by "Theorem 2.6" and "$\mathscr{M}(v)$, which is bounded".

In spite of the fact that the maximal satisfaction solution does not satisfy the nullplayer property it may still be of some use. Indeed, the bargaining set also does not satisfy the nullplayer property and, nevertheless, it plays a very important rôle in the theory of cooperative games.

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Reference

Sudhölter P, Peleg B (1998) Nucleoli as maximizers of collective satisfaction functions. Soc Choice Welfare 15: 383–411