On strategy-proof social choice correspondences

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I am grateful to Carmelo Rodríguez-Álvarez for pointing out my error in Sato (2007). In Sect. 3, the definition of $\succsim^{\min}$ and $\succsim^{\max}$ should be changed as follows: For $A = \{a_1, \dots, a_k\}$ and $B = \{b_1, \dots, b_h\}$,

- assume $a_k P a_{k-1} P \dots P a_2 P a_1$ and $b_h P b_{h-1} \dots P b_2 P b_1$, then

$$A \succsim^{\min} B \iff \left\{ \begin{array}{l} \exists l \leq (\min\{k, h\} + 1)/2 : \left[\begin{array}{l} a_l P b_l \text{ or } \left[\begin{array}{l} a_l = b_l \\ a_{k-l+1} P b_{h-l+1} \end{array} \right] \\ a_m = b_m, a_{k-m+1} = b_{h-m+1} \quad \forall m < l \end{array} \right] \\ \text{or} \\ \left[\begin{array}{l} k \geq h \\ \forall m \leq (h+1)/2, \left[\begin{array}{l} a_m = b_m \\ a_{k-m+1} = b_{h-m+1} \end{array} \right] \end{array} \right] \end{array} \right.$$

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- assume $a_1 P a_2 P \cdots P a_{k-1} P a_k$ and $b_1 P b_2 P \cdots P b_{h-1} P b_h$, then

$$A \succsim^{\max} B \iff \left\{ \begin{array}{l} \exists l \leq (\min\{k, h\} + 1)/2 : \left[\begin{array}{c} a_l P b_l \text{ or } \left[\begin{array}{c} a_l = b_l \\ a_{k-l+1} P b_{h-l+1} \end{array} \right] \\ a_m = b_m, a_{k-m+1} = b_{h-m+1} \quad \forall m < l \end{array} \right] \\ \text{or} \\ \left[\begin{array}{c} k \leq h \\ \forall m \leq (k+1)/2, \left[\begin{array}{c} a_m = b_m \\ a_{k-m+1} = b_{h-m+1} \end{array} \right] \end{array} \right] \end{array} \right.$$

Accordingly, the following changes are needed.

Example 3.1 On $\mathcal{A}$, $\succsim^{\max}$ does not coincide with $\succsim^{\text{top}}$. $\succsim^{\max}$ is such that $\{x_1, x_5\} \succ^{\max} \{x_1, x_4, x_5\} \succ^{\max} \{x_2, x_3, x_5\} \succ^{\max} \{x_3\}$ whereas $\succsim^{\text{top}}$ is such that $\{x_1, x_4, x_5\} \succ^{\text{top}} \{x_1, x_5\} \succ^{\text{top}} \{x_2, x_3, x_5\} \succ^{\text{top}} \{x_3\}$. (This change does not affect the other parts of the example.)

Proof of Theorem 3.2 The proof is similar to the proof of Theorem 3.1. To show that $x_2 \in F(R_N)$, we derive a contradiction to $x_2 \notin F(R_N)$ as follows: if $\{x_1, x_{|X|}\} = F(R_N)$, then $F(R'_2, R_{-2}) \succ_2^{\min} F(R_N)$. Otherwise, $F(R'_2, R_{-2}) \succ_2^{\max} F(R_N)$. These are contradictions to E^{BPX} strategy-proofness.