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Corrigendum to "Strategic priority-based course allocation" [Journal of Economic Behavior & Organization 226 (2024) 106701]

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The authors regret

a formal error and several substantive failures in the published analysis of Romero-Medina and Triossi (2024), henceforth RMT. The CA display omits a cumulative term; Lemma 1 can fail because a restriction may make an assigned sub-bundle unacceptable, and Lemma 2 because changing one report may change other students' rejection paths. In addition, under slot-specific course priorities an irrevocable IA assignment need not be selected from the course's final set of assignees. We also clarify an ambiguity in course-level acceptability under slot-specific priorities.

1. Correction and status of the published results

Klijn (2026) documents related failures in unit-demand school choice. The model stands; Proposition 1 and several statements concerning the examples require the corrections below. The interpretation immediately following RMT Example 4 does not stand. Lemmas 1–3, Theorems 1–3, Corollaries 1 and 2, Propositions 1–4, and the strong-equilibrium claims following Corollary 1 require correction; conditional replacements are provided where stated. We reserve P_s for a student's true preference and write Q_s for a submitted preference report; all other notation follows RMT. Let $C^r_{Q_s}$ be the r-th acceptable schedule in report Q_s, and put $C^r_{Q_s} = \varnothing$ after the report is exhausted. Set $\mu^0(c) = \varnothing$ and $H^0 = \varnothing$. At round $r \geq 1$, let

$$T^r = S \backslash H^{r-1}, S^r_c = \mu^{r-1}(c) \cup \left\{ s \in T^r : c \in C^r_{Q_s} \right\}, \mu^r(c) = \mathrm{Ch}_c\left(S^r_c\right).$$

The correct update is

$$H^r = H^{r-1} \cup \bigcup_{c \in C} \mu^r(c) \cup \left\{ s \in T^r : C^r_{Q_s} = \varnothing \right\}. \tag{1}$$

The RMT display omits H^{r-1}. Equation (1) is the cumulative-removal rule described in RMT: once held, a student never becomes active again, even if later displaced from every course (Klijn, 2026).

To remove an ambiguity in the RMT definition of slot-specific priorities, "unacceptable to any of c's slots" means unacceptable to every slot of c. This is equivalent to $\mathrm{Ch}_c(\{s\}) = \varnothing$, is consistent with the sequential slot-choice rule and RMT Example 4, and does not impose common acceptability across slots.

Table 1 summarizes the published results discussed in this corrigendum.

Example 1 (SO under course-specific acceptability). Let $S = \{s_1, s_2, s_3\}$ and $C = \{a, b, c\}$, with unit course capacities and responsive

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priorities

$$a : s_1 \succ s_2 \succ \varnothing \succ s_3, b : s_2 \succ s_3 \succ \varnothing \succ s_1, c : s_3 \succ s_1 \succ \varnothing \succ s_2.$$

They satisfy RMT essential homogeneity: no two students are acceptable at two courses with opposite rankings. True responsive preferences are

$$P_{s_1} : \{a,c\} \succ \{c\} \succ \{a\} \succ \varnothing, P_{s_2} : \{a,b\} \succ \{a\} \succ \{b\} \succ \varnothing,$$
$$P_{s_3} : \{b,c\} \succ \{b\} \succ \{c\} \succ \varnothing.$$

Under the unit-demand reports $Q_{s_1} : c \succ a$, $Q_{s_2} : a \succ b$, and $Q_{s_3} : b \succ c$, SO yields $\nu(s_1) = \{c\}, \nu(s_2) = \{a\}, \nu(s_3) = \{b\}$. This profile is a Nash equilibrium. If a deviation gave s_1 both a and c, stability would give b to s_2 (else (s_2, b) blocks), after which (s_3, c) blocks; the other cases are symmetric. Yet ν is blocked by (s_1, a), (s_2, b), and (s_3, c). It is also a strong-Nash-equilibrium outcome: any two students' only improving bundles share a unit-capacity course. The unique stable allocation, $\mu(s_1) = \{a\}$, $\mu(s_2) = \{b\}$, $\mu(s_3) = \{c\}$, is student-Pareto-dominated by ν.

Proposition 1 (Corrected RMT Proposition 1). *Assume that course priorities are responsive and all courses have the same set of acceptable students. The SO mechanism implements the set of stable allocations in* NE *on the domain of substitutable student preferences if and only if course priorities satisfy essential homogeneity.*

Proof. With common acceptability, essential homogeneity induces Kojima's serial order [(Kojima, 2013, Theorem 3)]. If stable μ first differs at dictator s from her choice B in residual menu M, earlier agreement and feasibility give $\mu(s) \subseteq M$. The case $B \subseteq \mu(s)$ contradicts strict optimality of B and student individual rationality; otherwise substitutability yields a $c \in B \setminus \mu(s)$ chosen from $\mu(s) \cup \{c\}$; the serial order makes c vacant or assigned to a lower-priority student, so (s, c) blocks. Thus the serial allocation is uniquely stable and equals SO. In any equilibrium, the first dictator who differs can profitably report truthfully; truthful reports support that allocation.

For necessity, retain the published proof's witnesses but use $Q_{s_1} : \{c_2\} \succ \{c_1\} \succ \varnothing$ and $Q_{s_2} : \{c_1\} \succ \{c_2\} \succ \varnothing$. Each auxiliary has and reports responsive preferences accepting exactly her target courses, with demand equal to their number; every student other than s_1, s_2 and the auxiliaries has and reports $\varnothing$ as top. Everyone but s_1 obtains her true top. No stable outcome after s_1's deviation can give her both courses: s_2 then loses c_1 and blocks c_2 with that course. Thus the unstable outcome is a Nash equilibrium. The published pure restrictions, by contrast, need not be an equilibrium.

RMT Figure 1 must therefore be amended: Example 6 has responsive, hence slot-specific, priorities but a two-cycle in its rejection graph. The SO, IA, CA, and ECA statements in RMT are subject to the additional conditions below.

For every corrected simplified mechanism below, fix the rationalization map so that a responsive message has its canonical quota-responsive extension: every schedule exceeding the reported demand or containing a reported-unacceptable course is ranked below $\varnothing$, and the remaining schedules are ordered responsively.

For a self-chosen incumbent set I and a disjoint set A of new applicants, write

$$U_c(I, A) = \max_{P_c} \{I \cup B : B \subseteq A\}.$$

A slot-specific course priority is *IA-consistent* if

$$\mathrm{Ch}_c(I) = I \Rightarrow \mathrm{Ch}_c(U_c(I, A)) = U_c(I, A)(I \cap A = \varnothing). \tag{2}$$

Thus each incumbent-preserving IA update from a self-chosen holding is again self-chosen. Standard quota-respecting responsive priorities are IA-consistent. More generally, the condition holds when all slots of a course have the same acceptable students and every set containing an unacceptable student or more than q_c students is ranked below the empty set.

Example 2 (IA need not be course individually rational). There are two students x, y and two courses c, d. Course c has capacity two

Table 1
Status of the published results discussed in this corrigendum.

Published item	Status of published claim	Treatment in this corrigendum
Lemma 1	False as stated.	Restored under IA-consistent slot-specific course priorities and the additional hypothesis that C' is individually rational in s's stated preference.
Proposition 1	False as stated	Example 1; restored under common course acceptability by Proposition 1.
Theorem 1	False as stated	RMT Example 4 and Example 2 are counterexamples; restored under IA consistency by Theorem 1.
Corollary 1	False as stated	Example 2 gives an unstable undominated Nash-equilibrium outcome.
Proposition 3	False as stated	RMT Example 4 and Example 2 are counterexamples; restored under IA consistency by Proposition 3.
CA definition	Incorrect formula	Formula corrected by (1).
Lemma 2	False as stated	Example 4 is a counterexample; Lemma B is the valid conditional replacement.
Theorem 2	False as stated.	Example 5; restored by Theorem 2 under path independence and rejection acyclicity.
Corollary 2	False as stated	Example 6 exhibits a stable allocation with no undominated CA Nash-equilibrium support.
Proposition 2	False as stated.	Example 5; corrected in Proposition 2.
Lemma 3	False as stated	Example 4 fills every course, so ECA has no later stage.
Theorem 3	False as stated.	Example 5; corrected in Theorem 3 under coherently responsive, rejection-acyclic priorities and HRS.
Proposition 4	False as stated.	Example 5; corrected in Proposition 4 under the same priority condition and slot-specific HRS preferences.

and ordered slots $\sigma_1 \triangleright_c \sigma_2$, with

$$\sigma_1 : x \succ y \succ \varnothing,\ \sigma_2 : x \succ \varnothing \succ y.$$

Hence

$$\mathrm{Ch}_c(\{x\}) = \{x\}, \mathrm{Ch}_c(\{y\}) = \{y\}, \mathrm{Ch}_c(\{x, y\}) = \{x\}.$$

The priority $\{x\}P_c\{x,y\}P_c\{y\}P_c\varnothing$ rationalizes this choice. Course d rejects both students. Both students have responsive true preferences, with c as their only acceptable course. Student y reports only c, whereas x submits the responsive unit-demand report $d \succ c \succ \varnothing$.

In round 1, y is assigned to c, while x is rejected by d. In round 2, x applies to c. Since y's assignment is irrevocable, the course compares $\{y\}$ and $\{x,y\}$ and selects $\{x,y\}$. Therefore

$$\mu(c) = \{x,y\}, \mathrm{Ch}_c(\mu(c)) = \{x\} \neq \mu(c),$$

so the outcome is not stable.

The profile is a Nash equilibrium in both the full and simplified IA message spaces because each student obtains her best true outcome. It is also undominated: x's report guarantees c against every report of y, while y requests c at the earliest opportunity; if x wins it in round 1, no delay helps because $\{x\}P_c\{x,y\}$. The example refutes RMT Theorem 1, Corollary 1, and Proposition 3 under their published assumptions. It also shows why slot-specific priorities alone do not imply course individual rationality of IA outcomes.

The same defect is already present in RMT Example 4. Its displayed choice for course c_1 is generated by three ordered slots:

$\sigma_1 : s_1 \succ s_2 \succ s_3 \succ \varnothing \succ s_4$,
$\sigma_2 : s_3 \succ s_2 \succ s_1 \succ \varnothing \succ s_4$,
$\sigma_3 : \varnothing \succ s_1 \succ s_2 \succ s_3 \succ s_4$.

They generate exactly the displayed choice: every singleton and pair, and $\{s_1, s_3\}$ from the triple. Thus the IA calculation is correct, but it refutes Theorem 1 and Proposition 3; the following claim that slot-specific priorities ensure course individual rationality is false.

Lemma 1. *Suppose course priorities are slot-specific and IA-consistent. Let $Q = (Q_s)_{s\in S}$ be a profile of admissible student reports and let μ = IA(Q). For every $s \in S$ and every $C' \subseteq \mu(s)$ such that* $\mathrm{Ch}_s(C', Q_s) = C'$, *we have* $\mathrm{IA}\big(Q_s|_{C'}, Q_{-s}\big)(s) = C'$.

Proof. The case $C' = \varnothing$ is immediate. For each $c \in C'$, let A_c be the original first-round applicant pool at c and let $K_c = \mathrm{Ch}_c(A_c)$. IA assignments are final, hence $K_c \subseteq \mu(c)$. IA consistency and induction over the IA rounds imply that every course holding, and hence $\mu(c)$, is self-chosen. Since $s \in \mu(c)$, substitutability gives

$s \in \mathrm{Ch}_c(K_c \cup \{s\})$.

Slot-specific course choice is path independent, and therefore

$\mathrm{Ch}_c(A_c \cup \{s\}) = \mathrm{Ch}_c(K_c \cup \{s\})$.

Because $\mathrm{Ch}_s(C', Q_s) = C'$, the restriction $Q_s|_{C'}$ places C' first. Thus every course in C' accepts s in the first IA round. Acceptances are final, and s becomes inactive, so her assignment is exactly C'.

The next example shows why the additional target-bundle condition is needed.

Example 3. There are two students s, t, two unit-capacity courses a, b, and the common responsive priority $t \succ s$. Student s's substitutable report ranks

$$\{b\} \succ_s \{a,b\} \succ_s \varnothing \succ_s \{a\},$$

and t reports only $\{b\}$. Under IA, course b accepts t in round 1; in round 2, s applies to $\{a,b\}$ and obtains a. Thus $\mu(s) = \{a\}$. By the definition of the restriction in RMT, $Q_{s|_{\{a\}}}$ ranks the subsets of $\{a\}$ exactly as Q_s does; since $\varnothing \succ_s \{a\}$, the schedule $\{a\}$ is unacceptable under $Q_s|_{\{a\}}$. The restriction therefore has no acceptable nonempty schedule and gives s the empty bundle, not $\{a\}$. The universal statement of Lemma 1 is therefore false. Its uses in the corrected Theorem 1 are repaired below by combining self-chosen target bundles with IA consistency. The report is substitutable because its choice selects b whenever b is available and selects $\varnothing$ from $\{a\}$.

Remark 1 (RMT Corollary 1). Here "undominated" means not weakly dominated by another admissible pure report. The undominatedness assertion in the published proof is false. Consider two students s, t, two unit-capacity courses a, b, and the responsive priority $t \succ s$ at both courses. Let

$$P_s : \{a\} \succ \{b\} \succ \varnothing \succ \{a,b\}, P_t : \{b\} \succ \{a\} \succ \varnothing \succ \{a,b\}.$$

The allocation $\mu(s) = \{a\}$, $\mu(t) = \{b\}$ is stable. The supporting restriction in which s reports only $\{a\}$ is weakly dominated by the admissible report that lists $\{a\}$ first and $\{b\}$ second: the reports have the same outcome whenever the restriction obtains a, while otherwise the longer report gives either b or the empty bundle. Dominance is strict when t reports only $\{a\}$.

Thus the published support argument is invalid. Example 2 further shows that Corollary 1 itself is false on the published slot-specific domain.

Theorem 1 (Corrected RMT Theorem 1). *The* IA *mechanism implements the set of stable allocations in* NE *if student preferences are substitutable and course priorities are slot-specific and IA-consistent.*

The proof is given together with that of Proposition 3 below.

1.1. Lemmas 2 and 3

Example 4. Let $S = \{s,x,u,v,w,p\}$, let $C = \{a,b,c,d\}$, and let every course have capacity two and the following responsive priority:

$$\begin{array}{ll} a: & p \succ x \succ s \succ u \succ v \succ w \\ b: & p \succ s \succ x \succ u \succ v \succ w \\ c: & p \succ v \succ x \succ s \succ u \succ w \\ d: & p \succ w \succ x \succ s \succ u \succ v. \end{array}$$

The acceptable schedules, in reported order, are

$$\begin{array}{ll} s: & \{c,d\},\ \{c\},\ \{d\},\ \{a,b\},\ \{a\},\ \{b\} \\ x: & \{b\},\ \{c\},\ \{d\},\{\ a\} \\ u: & \{a\} \\ v: & \{c\} \\ w: & \{d\}. \end{array}$$

All omitted schedules are below $\varnothing$, in any strict order. Student p has the generic additive report with course values $(8,4,2,1)$ for (a, b, c, d), so her first schedule is C. Every report is substitutable: x, u, v, w are unit-demand responsive, p is additive, and

$$\mathrm{Ch}_s(A) = \begin{cases} A \cap \{c,d\}, & A \cap \{c,d\} \neq \varnothing, \\ A \cap \{a,b\}, & A \cap \{c,d\} = \varnothing. \end{cases}$$

This rule directly satisfies substitutability.

In round 1, courses a, b, c, d hold respectively $\{p,u\},\ \{p,x\},\ \{p,v\},\ \{p,w\}$; only s remains active. She is rejected by c in round 2 and by d in round 3. In round 4 she requests $\{a,b\}$, displaces u and x, and obtains

$$\mathrm{CA}(Q)(s) = \{a,b\}.$$

The terminal holdings are $\{p,s\},\ \{p,s\},\ \{p,v\},\ \{p,w\}$, so all eight seats are filled.

The restriction in Lemma 2 is $Q_s|_{\{a,b\}} = \{a,b\},\ \{a\},\ \{b\}$. It makes s displace u at a and x at b in round 1. Student x, now active, is rejected by c and d in rounds 2 and 3 and requests a in round 4. Since $p \succ_a x \succ_a s$, course a displaces s. Cumulative removal prevents s from re-entering, and hence

$$\mathrm{CA}\Big(Q_s|_{\{a,b\}}, Q_{-s}\Big)(s) = \{b\} \neq \{a,b\}.$$

This is a many-to-many failure: the restricted report produces partial rather than total loss from a two-course assignment, and every course has two seats. The restricted run also fills all eight seats. As a first ECA stage, each run is terminal, so the same example independently refutes Lemma 3.

1.2. Theorems 2 and 3 and Propositions 2 and 4

Example 5. Let $S = \{1,2,3,4,5\}$, $C = \{a,b,c,d,e\}$, $q_a = 2$, and $q_b = q_c = q_d = q_e = 1$. All students are acceptable, and course priorities are

$$\begin{array}{llll} a: & 5 \succ 3 \succ 2 \succ 1 \succ 4 & b: & 3 \succ 4 \succ 1 \succ 5 \succ 2 \\ c: & 2 \succ 4 \succ 5 \succ 1 \succ 3 & d: & 2 \succ 4 \succ 5 \succ 3 \succ 1 \\ e: & 5 \succ 3 \succ 4 \succ 1 \succ 2. & & \end{array}$$

The following responsive reports are written as a quota and an order of individually acceptable courses:

s	q_s	$\widehat{\succ}_s$
1	2	$d \succ e \succ b \succ a \succ c$
2	2	$a \succ e \succ b \succ c \succ d$
3	1	e only
4	1	$a \succ c$ only
5	4	$a \succ b \succ c \succ e \succ d.$

True preferences are strict and additive, with individual-course values.

s	a	b	c	d	e
1	−1	−3	−9	81	−27
2	81	−1	−3	−9	−27
3	−1	−3	−9	−27	−81
4	−1	−3	81	−9	−27
5	3	9	−27	1	81.

The powers of three make all schedule values distinct. In round 1, a holds 5 and 2 and rejects 4; b and c hold 5; d holds 1; and e holds 5. In round 2, student 4 reaches c and displaces 5. The outcome is

$$\mu(1)=\{d\},\mu(2)=\{a\},\mu(3)=\varnothing,\mu(4)=\{c\},\mu(5)=\{a,b,e\} \tag{3}$$

Students 1–4 receive their global true optima. The pair $(5,d)$ blocks μ: student 5 gains one unit, and d ranks 5 above 1.

It remains to check every report of student 5. Let $A\subseteq C$ be her first reported schedule. If $A\neq\varnothing$, at least one course holds 5 in round 1, so the rest of her report is irrelevant under (1). Direct application of the priorities gives

$$\begin{aligned} F(A)=(A\cap\{a,e\})\cup\begin{cases}\{c\}, & c\in A, a\notin A,\\ \varnothing, & \text{otherwise},\end{cases}\\ \cup\begin{cases}\{d\}, & d\in A,\\ \varnothing, & d\notin A,\end{cases}\cup\begin{cases}\{b\}, & b\in A, d\notin A,\\ \varnothing, & \text{otherwise}.\end{cases}\end{aligned} \tag{4}$$

Indeed, requesting a makes 4 reach c and displace 5, while requesting d makes 1 reach b and displace 5. Formula (4) covers all $2^5=32$ first schedules. If $d\notin A$, student 5's utility is at most $u_5\{a,b,e\}=93$; if $d\in A$, she loses b, and her utility is at most $u_5\{a,d,e\}=85$. The empty report gives zero. Thus the profile is a Nash equilibrium with the unstable outcome (3).

All true preferences, priorities, and reports in Example 5 are responsive and therefore slot-specific (Kominers and Sönmez, 2016). The example refutes both Theorem 2 and Proposition 2 in their stated domains.

Every course is full after the first ECA stage. The deviation audit is also robust to later stages: if $d\notin A$, even granting 5 to every positively valued seat that can remain vacant gives at most 93; if $d\in A$, course b is filled by 1 and the bound is 85. Students 1–4 already obtain their global optima. Because the true preferences are additive, Lemma C below supplies a pure equilibrium continuation after every off-path history. The stage-1 profile is therefore part of a pure SPNE of ECA. The same responsive reports are available in simplified ECA. Hence Example 5 also refutes Theorem 3 and Proposition 4. For these ECA claims, take the standard quota-responsive set extensions of the displayed individual orders, so every residual choice uses the same order and the remaining capacity.

1.3. Corollary 2

Example 6 (A complete-domain counterexample). There are two students $1,2$ and two unit-capacity courses a,b, with responsive priorities

$$a:1\succ 2, b:2\succ 1.$$

The complete strict true preferences are

$$P_1:\{b\}\succ\{a\}\succ\varnothing\succ\{a,b\},$$
$$P_2:\{a\}\succ\{b\}\succ\varnothing\succ\{a,b\}.$$

They are substitutable. Exactly two allocations are stable:

$$\mu=(\{a\},\ \{b\}),\nu(\{b\},\{a\}).$$

The allocation μ is a CA Nash-equilibrium outcome, supported by reports placing $\{a\}$ first for student 1 and $\{b\}$ first for student 2.

There are exactly 20 strict substitutable reports over the four bundles. Direct comparison of each report against all 20 reports of the other student gives the following four undominated reports for student 1:

$$\{b\}\succ\{a\}\succ\varnothing\succ\{a,b\},\{b\}\succ\{a\}\succ\{a,b\}\succ\varnothing,$$
$$\{b\}\succ\{a,b\}\succ\varnothing\succ\{a\},\{b\}\succ\{a,b\}\succ\{a\}\succ\varnothing.$$

The four undominated reports for student 2 are

$$\{a\}\succ\{b\}\succ\varnothing\succ\{a,b\},\{a\}\succ\{b\}\succ\{a,b\}\succ\varnothing,$$
$$\{a\}\succ\{a,b\}\succ\varnothing\succ\{b\},\{a\}\succ\{a,b\}\succ\{b\}\succ\varnothing.$$

Every undominated report of student 1 places $\{b\}$ first, and every undominated report of student 2 places $\{a\}$ first. Hence every profile of undominated reports yields ν in round 1 and is a Nash equilibrium because both students receive their top bundle. Therefore

$$\mathrm{Out}(\mathrm{UNE}(\mathrm{CA};P))=\{\nu\}\subsetneq\{\mu,\nu\}=\mathscr{S}(P).$$

In particular, the stable allocation μ has no undominated Nash-equilibrium support. This refutes RMT Corollary 2 under its stated hypotheses and the corrected cumulative CA recursion. In this example, the unique undominated-equilibrium outcome ν is stable; the failure is the reverse inclusion.

2. Corrected CA results

For each course c, write $\mathrm{Ch}_c:2^S\to 2^S$ for its choice function. It is *path independent* if

$$\mathrm{Ch}_c(X\cup Y)=\mathrm{Ch}_c(\mathrm{Ch}_c(X)\cup Y)\qquad (X,Y\subseteq S). \tag{5}$$

Path independence implies substitutability and irrelevance of rejected students. Conversely, RMT course choice is rationalized by a strict order and hence satisfies irrelevance; together with substitutability, this is equivalent to (5). Thus rejection acyclicity is the only

assumption added to RMT Theorem 2.

Definition A (rejection acyclicity). For distinct students x, y, write $x \to y$ if, for some course c and pools $X, Y \subseteq S$,

$$x \in \mathrm{Ch}_c(X), \quad x \in Y \setminus \mathrm{Ch}_c(Y), \quad y \in \mathrm{Ch}_c(Y) \setminus X.$$

The course-choice structure is *rejection-acyclic* if this directed graph has no cycle.

The condition records only replacements capable of reversing a course's choice. We use it as a sufficient condition and make no necessity claim. Two remarks delimit its reach. On responsive priorities under which every student is acceptable at every course, $x \to y$ holds if and only if y has higher priority than x at some course c at which at least q_c students rank above x; a cycle of length two is then exactly a violation of essential homogeneity, RMT Definition 1, so rejection acyclicity implies essential homogeneity. On that domain Theorem 2 covers priority structures already covered by RMT Proposition 1 for the SO mechanism, and the gain from CA lies in the substitutable priorities that are not responsive, such as the class-size structures that motivate RMT, for which Definition 1 has no formulation. In the unit-demand case, Klijn (2026) obtains stable implementation from the weaker condition of Ergin-acyclicity (Ergin, 2002).

For every nonempty B, the admissible report domain contains a responsive report with demand $|B|$, precisely the courses in B acceptable, and B first.

Lemma A (Newcomer). *If* Ch *is path independent,* $x \in \mathrm{Ch}(X)$*, and* $x \in Y \setminus \mathrm{Ch}(Y)$*, then* $\mathrm{Ch}(Y) \setminus X \neq \varnothing$.

Proof. Otherwise $\mathrm{Ch}(Y) \subseteq Z := X \cap Y \subseteq Y$. Irrelevance of rejected students gives $\mathrm{Ch}(Z) = \mathrm{Ch}(Y)$, which excludes x. But $x \in \mathrm{Ch}(X) \cap Z$, so substitutability includes x in $\mathrm{Ch}(Z)$, a contradiction.

Lemma B (Many-to-many capture). *Suppose course choices are path independent and rejection-acyclic. Let* $\mu = \mathrm{CA}(Q)$*. If a student* s *and a nonempty schedule* B *satisfy*

$$s \in \mathrm{Ch}_c(\mu(c) \cup \{s\}) \quad (c \in B) \tag{6}$$

then replacing Q_s *by any admissible report with* B *first assigns exactly* B *to* s.

Proof. For run R, let $P_R^r(c)$ be the cumulative pool at c through round r. Induction using (5) shows that c's round-r holding is $\mathrm{Ch}_c\big(P_R^r(c)\big)$. Compare the original run O and the deviating run D. For $c \in B$,

$$\mu(c) = \mathrm{Ch}_c\big(P_O^\infty(c)\big), \quad s \in \mathrm{Ch}_c\big(P_O^\infty(c) \cup \{s\}\big),$$

where the second inclusion follows from (5) and (6). The first-round pool in D is a subset of the latter pool and contains s; substitutability therefore makes every $c \in B$ hold s in round 1.

Suppose $c \in B$ first rejects s in round r. Apply Lemma A to

$$X = P_O^\infty(c) \cup \{s\}, \quad Y = P_D^r(c).$$

It yields a student $x \in \mathrm{Ch}_c(Y) \setminus X$. Thus $x \neq s$, x applies to c in D but never in O, and $s \to x$. Since the graph is finite and acyclic, choose a numbering h with

$$u \to v \Rightarrow h(v) > h(u).$$

Let N be the nondeviating students who reach in D a position of their unchanged report that they do not reach in O. The student x belongs to N and $h(x) > h(s)$. Choose $z \in N$ with maximal $h(z)$, and fix such a position p. In O, some course d first holds z at a round $t < p$. Indeed, because the report is unchanged and D reaches p, failure to reach p in O cannot be caused by report exhaustion; nor can it be caused by termination of the run, since O stops only when every student is inactive, and z would still be active. In D, z remains active through t, so d rejects her from the same round-t schedule. Lemma A applied to the two cumulative round-t pools $X = P_O^t(d)$ and $Y = P_D^t(d)$ yields $y \in \mathrm{Ch}_d(Y) \setminus X$, hence $z \to y$. If $y = s$, then $h(s) > h(z) > h(s)$. Otherwise y's unchanged report reaches a position containing d, of index at most t, in D but not in O; hence $y \in N$ and $h(y) > h(z)$, contradicting maximality. Thus no course in B rejects s, and her first schedule gives exactly B.

Theorem 2 (Corrected RMT Theorem 2).

The CA *mechanism implements the set of stable allocations in* NE *if student preferences are substitutable, every course choice is path independent, and the course-choice structure is rejection-acyclic.*

Proof. Let μ be stable. Each student s reports responsively with demand $|\mu(s)|$ and precisely $\mu(s)$ acceptable, using the empty report when $\mu(s) = \varnothing$. Everyone with a nonempty assignment is assigned in round 1. Under a unilateral deviation, the cumulative terminal pool at each course c in the deviator's final bundle T is $\mu(c) \cup \{s\}$, with the union redundant if $c \in \mu(s)$. Thus $s \in \mathrm{Ch}_c(\mu(c) \cup \{s\})$ for every $c \in T$. If $T \succ_s \mu(s)$, put $Z = \mathrm{Ch}_s(\mu(s) \cup T)$. If $Z \subseteq \mu(s)$, irrelevance of rejected alternatives and student individual rationality would give $Z = \mathrm{Ch}_s(\mu(s)) = \mu(s)$, contradicting the optimality of Z over a set containing the strictly preferred bundle T. Hence $Z \setminus \mu(s) \neq \varnothing$, and substitutability identifies some

$$c \in Z \setminus \mu(s) \text{ with } c \in \mathrm{Ch}_s(\mu(s) \cup \{c\}).$$

Then (s, c) blocks μ, a contradiction. Hence the reports form an equilibrium.

Conversely, let Q be an equilibrium with outcome μ. The cumulative-pool identity and idempotence give course individual rationality. If student individual rationality fails for s, put $B = \mathrm{Ch}_s(\mu(s))$. The empty report is profitable if $B = \varnothing$; otherwise course individual rationality gives (6), and Lemma B makes a report with B first profitable. If (s, c) blocks μ, put $B = \mathrm{Ch}_s(\mu(s) \cup \{c\})$. Condition (6) follows from course individual rationality for $d \in B \cap \mu(s)$ and from blocking for $d = c$. The capture lemma gives $B \succ_s \mu(s)$, again

contradicting equilibrium. Thus every equilibrium outcome is stable.

Proposition 2 (Corrected RMT Proposition 2).

Assume that student preferences are slot-specific, every course choice is path independent, and the course-choice structure is rejection-acyclic. The SCA *mechanism implements the set of stable allocations in* NE.

Proof. Every supporting report and every target report used in the proof of Theorem 2 can be chosen responsive and therefore belongs to the simplified message space. Slot-specific true preferences are substitutable, so the same proof applies.

Proposition 3 (Corrected RMT Proposition 3).

Assume that student preferences are slot-specific and course priorities are slot-specific and IA-consistent. The simplified IA *mechanism implements the set of stable allocations in* NE.

Proof of Theorem 1 and Proposition 3. We prove both replacements directly; Proposition 3 does not follow from the false Proposition 2. Let m be an equilibrium in the relevant IA message space, with outcome μ. IA consistency and induction over rounds imply that every course holding is self-chosen, so μ is individually rational for courses. Suppose either that student individual rationality fails for s, in which case put $B = \mathrm{Ch}_s(\mu(s))$, or that (s,c) blocks μ, in which case put $B = \mathrm{Ch}_s(\mu(s) \cup \{c\})$. In the first case the empty message is profitable if $B = \varnothing$. Otherwise, for every $d \in B$, let A_d be the original first-round applicant pool and let $K_d = \mathrm{Ch}_d(A_d)$. IA assignments are final, so $K_d \subseteq \mu(d)$. Course individual rationality for $d \in B \cap \mu(s)$, blocking for $d = c$ when applicable, and substitutability imply

$$s \in \mathrm{Ch}_d(K_d \cup \{s\}).$$

Slot-specific course choice is path independent, so $\mathrm{Ch}_d(A_d \cup \{s\}) = \mathrm{Ch}_d(K_d \cup \{s\})$. A simplified message with first schedule B, constructed responsively with demand $|B|$ and precisely B acceptable, therefore assigns every course of B to s in the first IA round. The bundle is strictly preferred to $\mu(s)$ in either case, contradicting equilibrium.

Conversely, let each student report responsively with precisely the courses in her stable bundle acceptable and with reported demand $|\mu(s)|$. These reports yield the stable allocation in round 1. If a deviation gives s a better bundle T, put $Z = \mathrm{Ch}_s(\mu(s) \cup T)$. The choice argument in the proof of Theorem 2 identifies $c \in Z \setminus \mu(s)$ such that $c \in \mathrm{Ch}_s(\mu(s) \cup \{c\})$. All members of $\mu(c)$ apply in round 1. If s is assigned to c in round 1, then her acceptance directly gives $s \in \mathrm{Ch}_c(\mu(c) \cup \{s\})$. If s is assigned to c in a later round, all members of $\mu(c)$ were assigned in round 1 and remain irrevocably assigned. IA consistency makes the holding that accepts s self-chosen; substitutability then gives $s \in \mathrm{Ch}_c(\mu(c) \cup \{s\})$. Thus (s,c) blocks μ. Hence, no deviation is profitable, even in the full IA domain, and all supporting reports belong to the simplified domain.

For Theorem 1, true student preferences need only be substitutable and the same target reports are admissible in the full domain. For Proposition 3, slot-specific true preferences are substitutable, and every target and supporting report used above is responsive and therefore belongs to the simplified message space.

3. Corrected ECA results

Throughout this section, a responsive course priority is induced by a fixed strict individual order, an acceptability set, and capacity q_c. Conditional on an irrevocable incumbent set I_c, its residual choice uses the same order and acceptability set with capacity $q_c - |I_c|$. We call a responsive priority together with this residual rule *coherently responsive*. Coherent responsiveness is part of every hypothesis below, not merely a notational convention.

At an ECA history, let I_s be the bundle already assigned irrevocably to student s. For $A \subseteq C \setminus I_s$, define the residual preference and its choice by

$$X \succ_s^{I_s} Y \Leftrightarrow I_s \cup X \succ_s I_s \cup Y, \qquad X, Y \subseteq C \setminus I_s,$$

$$\mathrm{Ch}_s^{I_s}(A) = \operatorname*{argmax}_{\succ_s^{I_s}} \{X : X \subseteq A\}.$$

Definition B (Hereditary residual substitutability). A student preference satisfies *hereditary residual substitutability* (HRS) if, for every $I \subseteq C$, every $A \subseteq B \subseteq C \setminus I$, and every $c \in A$,

$$c \in \mathrm{Ch}_s^I(B) \Rightarrow c \in \mathrm{Ch}_s^I(A).$$

HRS is strictly stronger than substitutability of the initial choice. Even when that initial choice has a one-slot representation, an arbitrary strict rationalization need not be HRS. For example, consider the strict ranking

$$\{a\} \succ \varnothing \succ \{b\} \succ \{a,b\} \succ \{a,b,c\} \succ \{c\} \succ \{a,c\} \succ \{b,c\}.$$

Its initial choice is the one-slot rule that selects a whenever available and selects nothing otherwise. With the irrevocable bundle $I = \{c\}$, however,

$$\mathrm{Ch}_s^I(\{a,b\}) = \{a,b\}, \qquad \mathrm{Ch}_s^I(\{a\}) = \varnothing,$$

so residual substitutability fails. Generic additive preferences satisfy HRS, as shown below.

Lemma C (Residual support). *Suppose course priorities are coherently responsive and student preferences satisfy HRS. At every non-terminal ECA history and for every stable allocation ν of the current residual market, there exists a pure subgame-perfect continuation. It can be constructed recursively by assigning ν in the next stage, prescribing empty reports at the resulting successor, and repeating the construction*

after every off-path successor.

Proof. Fix irrevocable assignments I generated by ECA. Thus $|I_c| \leq q_c$, and every incumbent is acceptable to her course. Each course has its original responsive order and residual capacity $q_c - |I_c|$; write Ch_c^I for this residual choice. HRS makes every student's residual choice substitutable; strictness supplies irrelevance of rejected alternatives. Stable residual allocations exist (Echenique and Oviedo, 2006). Fix any stable residual allocation ν. For each student s, submit $Q_s = \left(\succ_s^{I_s}\right)|_{\nu_s}$. Residual individual rationality makes ν_s the first schedule in each restricted report, while course individual rationality makes every course retain exactly ν_c in round 1; hence that CA stage assigns ν. HRS and restriction preserve substitutability, so the reports are admissible. At the successor generated by these prescribed reports, prescribe empty reports; after any other successor history, choose a fresh stable residual allocation and repeat this construction recursively.

Suppose a complete contingent deviation by s ultimately gives residual bundle W with $I_s \cup W \succ_s I_s \cup \nu_s$. Put

$$Z = \mathrm{Ch}_s^{I_s}(\nu_s \cup W).$$

Since $W \succ_s^{I_s} \nu_s$ and both W and ν_s are feasible subsets of $\nu_s \cup W$, optimality of Z gives $Z \succ_s^{I_s} \nu_s$. If $Z \subseteq \nu_s$, irrelevance of rejected alternatives gives

$$Z = \mathrm{Ch}_s^{I_s}(\nu_s) = \nu_s,$$

a contradiction. Hence choose $c \in Z \setminus \nu_s$; HRS gives

$$c \in \mathrm{Ch}_s^{I_s}(\nu_s \cup \{c\}).$$

Every member of ν_c applies to c in the first round of the prescribed continuation. If ν_c fills the residual capacity, s can obtain c only during that next CA stage, and responsive choice then implies $s \in \mathrm{Ch}_c^I(\nu_c \cup \{s\})$. If ν_c does not fill the capacity, obtaining c now or later shows that s is acceptable, and the same inclusion follows. Thus (s, c) blocks ν, a contradiction. To complete the recursion, observe that the empty allocation is stable in the market residual to $I \cup \nu$. Indeed, if a student–course pair blocked it, residual individual rationality of ν_s would make the new course chosen from $\nu_s \cup \{c\}$, while the responsive residual-capacity rule would make the student chosen from $\nu_c \cup \{s\}$. The same pair would therefore block ν in the market residual to I. Applying the preceding complete-deviation argument at that successor history with target allocation $\varnothing$ rules out every multi-stage contingent deviation. The recursion is well founded because every non-terminal ECA stage adds at least one irrevocable student–course assignment and the market is finite. Since the prescription is defined after every history, it is a pure SPNE.

Theorem 3 (Corrected RMT Theorem 3).

The ECA *mechanism implements the set of stable allocations in pure* SPNE *if student preferences satisfy HRS, course priorities are coherently responsive, and their rejection graph is acyclic.*

Proof. Let μ^1 and μ be, respectively, the first-stage and final outcomes of a pure SPNE. Responsive choice makes μ individually rational for courses.

If student individual rationality fails for s, put $B = \mathrm{Ch}_s(\mu(s))$. The empty report at every stage is profitable when $B = \varnothing$. Otherwise, for every $d \in B$, either s received d in stage 1, or d had a vacancy then and accepted s later. Thus

$$s \in \mathrm{Ch}_d\left(\mu^1(d) \cup \{s\}\right)(d \in B).$$

Lemma B, applied to the first-stage CA run whose outcome is μ^1, assigns all of B irrevocably in stage 1; empty reports thereafter make this a profitable complete deviation. This contradicts subgame perfection, so the final allocation is individually rational for students.

If (s, c) blocks μ, put $B = \mathrm{Ch}_s(\mu(s) \cup \{c\})$. The preceding argument applies to every $d \in B \cap \mu(s)$. For the new course c, responsiveness and $\mu^1(c) \subseteq \mu(c)$ imply

$$s \in \mathrm{Ch}_c(\mu(c) \cup \{s\}) \Rightarrow s \in \mathrm{Ch}_c\left(\mu^1(c) \cup \{s\}\right).$$

Lemma B, followed by empty reports, again gives a profitable deviation. Hence every SPNE outcome is stable. This direction does not use HRS.

Conversely, let μ be stable. Apply Lemma C at the initial history with $I = \varnothing$ and $\nu = \mu$, and apply its recursive construction after every off-path history. The lemma rules out every complete contingent deviation and establishes subgame perfection.

Proposition 4 (Corrected RMT Proposition 4).

Assume that student preferences are slot-specific and satisfy HRS, course priorities are coherently responsive, and their rejection graph is acyclic. The simplified ECA *mechanism implements the set of stable allocations in pure* SPNE.

Proof. The empty target is represented by the empty message. Every nonempty target bundle B used in the proofs of Lemmas B and C is represented by a responsive message with demand $|B|$, with precisely the courses in B acceptable. Under the canonical responsive rationalization fixed above, it places B first, and every later schedule is a subset of B. Thus the proof of Theorem 3 applies in the simplified message space.

Corollary (Generic additive preferences). *Under the course-priority assumptions of Theorem 3, its conclusion and Proposition 4 hold whenever every student has a utility $u_s(X) = \sum_{c \in X} v_{sc}$ whose subset sums are all distinct.*

Proof. Fixing an irrevocable bundle adds the same constant to every residual utility. Hence every residual choice is responsive and substitutable: generic additive preferences are slot-specific and satisfy HRS.

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References

Echenique, F., Oviedo, J., 2006. A theory of stability in many-to-many matching markets. Theoretical Economics 1, 233–273.
Ergin, H.I., 2002. Efficient resource allocation on the basis of priorities. Econometrica 70, 2489–2497. https://doi.org/10.1111/j.1468-0262.2002.00447.x.
Klijn, F., 2026. Conditional acceptance in school choice. Barcelona School of Economics Working Paper 1582.
Kojima, F., 2013. Efficient resource allocation under multi-unit demand. Games and Economic Behavior 82, 1–14. https://doi.org/10.1016/j.geb.2013.06.005.
Kominers, S.D., Sönmez, T., 2016. Matching with slot-specific priorities: Theory. Theoretical Economics 11, 683–710. https://doi.org/10.3982/TE1839.
Romero-Medina, A., Triossi, M., 2024. Strategic priority-based course allocation. Journal of Economic Behavior & Organization 226, 106701. https://doi.org/10.1016/j.jebo.2024.106701.