Example 1(i): Figure 8 (a) Choice 1 of representatives for vertex orbits

Symmetric \((C_2)\) Pebble Game Algorithm Demonstration (Algorithm 7.1)
Example 1(i): Figure 8 (a) Choice 1 of representatives for vertex orbits ... continued.
Example 1(i): Figure 8 (a) Choice 1 of representatives for vertex orbits ... continued.

$\hat{G}$ and $\hat{G}^*$

6$|B|$ - 6 pebble game
Step (1) (i)
Example 1(i): Figure 8 (a) Choice 1 of representatives for vertex orbits ... continued.

Place pebbled edges (with arrows) in the set $E_1$ and edge $r$ into set $R_1$

$|B| - 6$ pebble game

Step (1) (i)
Example 1(i): Figure 8 (a) Choice 1 of representatives for vertex orbits ... continued.

Place pebbled edges from $\hat{G}^*$ in the set $E_1^*$ and edge $r'$ into set $R_1$.

$6|B| - 6$ pebble game
Step (1) (ii)
Example 1(i): Figure 8 (a) Choice 1 of representatives for vertex orbits ... continued.

Continue to play the $6|B| - 6$ pebble game on the bridging edges, working on the two edges of an orbit consecutively.

$6|B| - 6$ pebble game
Step (1) (iii)
Example 1(i): Figure 8 (a) Choice 1 of representatives for vertex orbits ... continued.

Place the pebbled bridging edges (green) into $E_2$

6$|B|$ - 6 pebble game
Step (1) (iii)
Example 1(i): Figure 8 (a) Choice 1 of representatives for vertex orbits ... continued.

Place the pebbled bridging edges (green) into $E_2$

6$|B|$ - 6 pebble game
Step (1) (iii)
Example 1(i): Figure 8 (a) Choice 1 of representatives for vertex orbits ... continued.

Place the pebbled bridging edges (green) into $E_2$

6|B| - 6 pebble game
Step (1) (iii)
Example 1(i): Figure 8 (a) Choice 1 of representatives for vertex orbits ... continued.

Continue to place the pebbled bridging edges (green) into $E_2$

$6|B| - 6$ pebble game
Step (1) (iii)
Example 1(i): Figure 8 (a) Choice 1 of representatives for vertex orbits ... continued.
Example 1(i): Figure 8 (a) Choice 1 of representatives for vertex orbits ... continued.

Three remaining free pebbles indicate 1-non trivial symmetric DOF.

Place the pebbled orbit edges (green) into $E_3$.

$6|B_0|$ - 2 pebble game on the orbit graph $G_0$

Step (2) (i), (ii)

Three remaining free pebbles indicate 1-non trivial symmetric DOF.
Example 1(ii): Figure 8 (b) Choice 2 of representatives for vertex orbits

Symmetric ($C_2$) Pebble Game Algorithm Demonstration (Algorithm 7.1)
Example 1(ii): Figure 8 (b) Choice 2 of representatives for vertex orbits ... continued
Example 1(ii): Figure 8 (b) Choice 2 of representatives for vertex orbits ... continued

Place pebbled edges (with arrows)
in $E_1$

$\widehat{G}$

$\widehat{G}^*$

6|B| - 6 pebble game
Step (1) (i)
Example 1(ii): Figure 8 (b) Choice 2 of representatives for vertex orbits ... continued

Place pebbled edges from $\hat{G}$ in the set $E_1^*$

$6|B| - 6$ pebble game

Step (1) (ii)
Place the pebbled bridging edges (green) into $E_2$.

A failed search region for edge $r'$.

Bridging edges $r$ and $r'$ (tested last among bridging pairs) are placed into $R_1$ as their failed search does not contain two copies of any vertex orbit.

Example 1(ii): Figure 8 (b) Choice 2 of representatives for vertex orbits ... continued
Example 1(ii): Figure 8 (b) Choice 2 of representatives for vertex orbits ... continued

$6 |B_0| - 2$ pebble game on the orbit graph $G_0$
Step (2) (i), (ii)
Example 1(ii): Figure 8 (b) Choice 2 of representatives for vertex orbits ... continued

6|B₀| - 2 pebble game on the orbit graph G₀
Step (2) (i), (ii)

Three remaining free pebbles indicate
1-non trivial symmetric DOF

Place the pebbled orbit edges (green) into E₃
Example 2: Figure 8 (c)

Symmetric ($C_2$) Pebble Game Algorithm Demonstration (Algorithm 7.1)
Example 2: Figure 8 (c) ... continued
Example 2: Figure 8 (c) ... continued

Place pebbled edges from $G^*$ in the set $E_1^*$

$\hat{G}$

$\hat{G}^*$

$6|B| - 6$ pebble game
Step (1) (i - ii)
Place the pebbled bridging edges (green) into $E_2$.

Bridging edges $q$ and $q'$ (tested last among bridging pairs) are placed in the set $Q$ as their failed search region contains two copies of vertex orbit.

A failed search region for edges $q$ and $q'$ is the entire graph $G$.

6$|B|$ - 6 pebble game
Step (1) (iii - vi)
Example 2: Figure 8 (c) ... continued

$6|B_0| - 2$ pebble game on the orbit graph $G_0$

Step (2) (i), (ii)
Example 2: Figure 8 (c) ... continued

6|B₀| - 2 pebble game on the orbit graph G₀
Step (2) (i), (ii)

Two remaining free pebbles indicate 0 non-trivial symmetric DOF

All orbit edges in $E_2 \cup Q$ are successfully pebbled
Example 3: Figure 9

Symmetric ($C_2$) Pebble Game Algorithm Demonstration (Algorithm 7.1)
Example 3: Figure 9 ... continued

\( ^\wedge G \) and \( ^\wedge G^* \) - 6 pebble game

Step (1) (i)
Example 3: Figure 9 ... continued

6|B| - 6 pebble game
Step (1) (ii)
6|B| - 6 pebble game
Step (1) (iii)
Example 3: Figure 9 ... continued

$6|B_0| - 2$ pebble game
Step (2) (i - ii)
Three remaining free pebbles indicate that boat has $C_2$-symmetric non-trivial DOF

6$|B_0| - 2$ pebble game
Step (2) (i - ii)