**Supporting Information**


**Text S2: An Annotated Sample Game**

<table>
<thead>
<tr>
<th>query</th>
<th>result</th>
</tr>
</thead>
<tbody>
<tr>
<td>experiment 1:</td>
<td><img src="image" alt="query1" /></td>
</tr>
<tr>
<td>experiment 2:</td>
<td><img src="image" alt="query2" /></td>
</tr>
<tr>
<td>experiment 3:</td>
<td><img src="image" alt="query3" /></td>
</tr>
<tr>
<td>experiment 4:</td>
<td><img src="image" alt="query4" /></td>
</tr>
</tbody>
</table>

**Conclusions:**

i. All colors have been tested and only three dots have been given in total; therefore at least one color is repeated in the code.

ii. The code has no **GREEN** or **YELLOW**.

iii. Therefore, the code has both **RED** and **BLUE**, and either **PINK** or **ORANGE** (but not both).

iv. Based on experiment 1, either **RED** is in first position and **BLUE** is in third or fourth, or **BLUE** is in second and **RED** is in third or fourth.

v. Based on experiment 2, either **PINK** is in first position or **ORANGE** is in second.

vi. The code has no **PINK**. The code contains only **RED**, **BLUE**, and **ORANGE**.

vii. Following conclusion v, **ORANGE** must be in second position.

viii. If **ORANGE** is in second position, **BLUE** can’t be. Following conclusion iv, **RED** must therefore be in first. The only codes consistent with these data are ROBB, ROBO, ROBR, ROOB, and RORB.
Conclusions:

ix. ORANGE is repeated.

x. BLUE must be in fourth position. Only one possible code remains.