

- 8.1 Any language in $SPACE(f(n))$ as defined using the two-tape read-only model can be simulated with a single tape model using at most $O(n)$ space. Similarly, any language in $SPACE(f(n))$ as defined using a single tape model can be simulated with a two-tape read-only model with an improvement of at most $O(n)$ space. Thus, the complexity classes are equivalent where $f(n) \geq n$.
- 8.2 The winning strategy for X is to move to the top-right position. O can then move to block only either the top-centre or centre-right position. If O moves to the top-centre, X moves to the centre-right. If O move to the centre-right, X moves to the top-centre.
- 8.3 Player I has a winning strategy as follows:
- Player I begins at node 1.
 - Player 2 chooses node 2.
 - Player I chooses node 4. Node 3 has only one outgoing edge which connects to node 6. As node 6 has no outgoing edges, this path would guarantee a win for Player II.
 - Player II chooses node 5.
 - Player I chooses node 6. As no unchosen nodes remain, Player I wins.