Problem of the Week 8, Fall 2005

Solution by the organizers. First note that we can assume that Oscar does not place an O in the first row in his first turn. If this were the case we can follow the strategy below changing *rows* by *columns*.

Here is Xochitl's strategy.

1. Xochitl's first three plays will be in the first row. This is always possible assuming that Oscar's first play is not in the first row.

2. At the end of Oscar's third turn two things may happen.

- There is a row whose three boxes directly above Xochitl's Xs are still empty.

  In this case, regardless of Oscar's fourth play, Xochitl will be able to place two Xs in these three boxes in her next two turns. These two Xs together with the Xs directly below them in the first row will form a *rectangle*.

- Oscar's three Os are all above an X and they are in different rows.

  This means that there is one empty box in the first row. Xochitl's next play is to take this box. Again, regardless of Oscar's fourth play, there will be a row with three empty boxes. Xochitl will be able to place two Xs in these three boxes in her next two turns. These two Xs together with the Xs directly below them in the first row will form a *rectangle*.