Games and Computation Homework #1: Game Classifications

For each of the following games, classify each as a **combinatorial game**, a **game of chance**, or a **strategic game** according to its most natural game model (i.e. mathematical representation). Enter your answers online in the HW1 Moodle quiz. Assumptions:

- Assume that chance events that occur *before the start of the game play* (e.g. a face-up deal of card pack, the choice of a secret word) are not part of the game play model. Classify according to play *after this event*.
- Assume that chance events that occur *during the game* (e.g. rolling dice, drawing face-down cards) are part of the probabilistic game model.
- Strategic games may have chance events. What differentiates a game of chance from a strategic game with chance is whether it is a game of perfect or imperfect information, respectively.
- In all games marked "(solitaire)", do not treat other non-choice-making players (e.g. constrained clue givers) as active players in the game model.

Games:
1. Amazons (El Juego de las Amazonas)
2. Breakthrough
3. Can't Stop
4. Connect6
5. Dudo (a.k.a. Liar's Dice, Bluff, Call My Bluff, Perudo, etc.)
6. Freecell (solitaire)
7. Gin Rummy
8. Goofspiel (a.k.a. GOPS)
9. Halma
10. Hex
11. Jotto (solitaire)
12. Pentominoes (Golomb's Game)
13. Poker Squares (solitaire)
14. President
15. Yahtzee

Ask yourself these questions about each game:
- Is there perfect information? That is, does each active player have all of the relevant information of all other active players[1] for making the best decision? If not, it is a **strategic game**.
- If so, are there chance events *during play*? If so, it is a **game of chance**.
- If not, then it is a deterministic game of perfect information and is thus a **combinatorial game**.

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[1] Chance or "nature" players in models are not considered as being active players. They serve as random number generators.