1. Here is a listing of the Tromp-Taylor rules for go.

(a) Go is played on a 19x19 square grid of points, by two players called Black and White.
(b) Each point on the grid may be colored black, white or empty.
(c) A point P, not colored C, is said to reach C, if there is a path of (vertically or horizontally) adjacent points of P’s color from P to a point of color C.
(d) Clearing a color is the process of emptying all points of that color that don’t reach empty.
(e) Starting with an empty grid, the players alternate turns, starting with Black.
(f) A turn is either a pass; or a move that doesn’t repeat an earlier grid coloring.
(g) A move consists of coloring an empty point one’s own color; then clearing the opponent color, and then clearing one’s own color.
(h) The game ends after two consecutive passes.
(i) A player’s score is the number of points of her color, plus the number of empty points that reach only her color. The player with the higher score at the end of the game is the winner. Equal scores result in a tie.

For each of the following, give the corresponding Tromp-Taylor rule above.

(a) the rule that explains when a group is captured
(b) the rule that explains positional superko
(c) the rule that we usually change when we discuss the rules of Go (for example, the rule that DeepMind changed when they wrote AlphaGo)
2. (a) The last two moves in this game were Black[a4] White[a3]. If the game ends now, give the Tromp-Taylor score (stones plus points) for Black, and also for White.

(b) If the game continues and Black wants to quickly capture the White group at a5, what is Black’s best next move?
2. (a) The last two moves in this game were Black[f1] White[g1]. If the game ends now, give the Tromp-Taylor score (stones plus points) for Black, and also for White.

(b) If the game continues and Black wants to quickly capture the White group at e1, what is Black’s best next move?
2. (a) The last two moves in this game were Black[4] White[3]. If the game ends now, give the Tromp-Taylor score (stones plus points) for Black, and also for White.

(b) If the game continues and Black wants to quickly capture the White group at i5, what is Black’s best next move?
2. (a) The last two moves in this game were Black[f9] White[g9]. If the game ends now, give the Tromp-Taylor score (stones plus points) for Black, and also for White.

(b) If the game continues and Black wants to quickly capture the White group at e9, what is Black’s best next move?
3. A strategy is *winning* if it wins against every possible opponent strategy. A move is *winning* if it is the first move in a winning strategy. For this hex position with Black to play, give all winning moves.
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