In the methodology developed by Kenneth Regan, the **"Solitaire Set" (S)** serves as a standardized "benchmark test" designed to remove the variable of game difficulty when calculating a player's rating.

1. What is the Solitaire Set (S)?

The Solitaire Set (S) is a fixed collection of chess positions taken from the **2005 and 2007 World Championship tournaments** and the **2006 World Championship match**[11]. Although these specific games were originally played by elite players with a narrow rating range (approximately 2670–2801), in the model, they function only as a **static set of "test questions"**[222].

2. How Parameters are Translated into Elo

The concern regarding the "narrow range" is resolved by distinguishing between the **calibration data** and the **standardized benchmark**:

- **Broad Calibration:** The model's understanding of "what an 1800 player looks like" vs. "what a 2700 player looks like" comes from a massive **Training Set** (e.g., games from 2006–2009) that includes players across the entire Elo spectrum, from **1600 to 2700+**[333333333].

- **The Translation Bridge:** To create a universal scale, the authors take the skill parameters (s, c) belonging to each rating group in the training data and calculate what their **Expected Average Error (AE_e)** would be if they were to play through the positions in the **Solitaire Set (S)**[444444].

- The Linear Fit: This process generates a table of AE_e values corresponding to specific Elo levels (Table 1)5. From this, a simple linear equation is derived to produce the final Intrinsic Performance Rating (IPR)6:

  $$IPR = 3571 - 15413 \cdot AE_e$$
  [7]

3. What does "Projected" Mean?

In this paper, **"projected"** refers to a **mathematical expectation** rather than an actual historical occurrence.

- **Mathematical Probability:** Once skill parameters (s, c) are fitted to a player's performance in a test set (T), those parameters provide a probability (p_i) for every possible legal move in any given position[8].

- **Standardization:** "Projecting" onto Set S means the model takes the player's measured skill and calculates their **Expected Average Error** on the specific positions in the benchmark Set S, rather than the games they actually played[999].

- **Eliminating Difficulty Bias:** This is crucial because some games are "easier" to play accurately than others. By projecting every player onto the *same* set of positions (Set S), the model ensures that an IPR of 2400 represents the same level of precision regardless of whether the original games were tactical shootouts or quiet endgames[1010101010101010].

4. "Playing Through" the Positions

"Playing through" the positions in Set S does not mean the player actually sat down to play them. Instead, it is a statistical simulation where the model uses the player's previously determined s and c values to determine the **mathematical probability** of the player making various errors across all moves in the Solitaire Set[11111111]. The sum of these probabilities yields the **Expected Average Error (AE_e)**, which is then converted into the final IPR[12121212].