

Certainly! Here's an Markdown-formatted output of the method signatures and a brief description of their behavior:

PL_PIG_CHESS_ENGINE_EVAL Package Body

Method Signatures:

CREATE OR REPLACE PACKAGE BODY PL_PIG_CHESS_ENGINE_EVAL

This is the main package body declaration. It contains various procedures and functions related to the chess engine.

FUNCTION UPPER_n(n SIMPLE_INTEGER) RETURN SIMPLE_INTEGER

This function takes an integer `n` as input and returns its uppercase equivalent. It is used to convert piece representations to uppercase for comparison.

FUNCTION pdN(brik_n SIMPLE_INTEGER, felt SIMPLE_INTEGER) RETURN SIMPLE_INTEGER

This function calculates the index for a two-dimensional array based on the piece representation (`brik_n`) and the square number (`felt`). It is used to access the positional data arrays.

FUNCTION pdX(brik CHAR, felt SIMPLE_INTEGER) RETURN SIMPLE_INTEGER

Similar to `pdN`, this function calculates the index for a two-dimensional array but takes a character (`brik`) and an integer (`felt`) as input.

PROCEDURE WRT(s VARCHAR2)

This procedure writes a string `s` to the output, presumably for debugging purposes.

PROCEDURE PreProcess

The `PreProcess` procedure initializes and clears the positional data arrays (`pdw`). It sets default positional values and adjusts them based on the game position.

PROCEDURE PreProcessor(stilling STILLINGTYPE)

This procedure adjusts the positional data arrays (pdw) according to the actual game position. It calculates pawn center types, adjusts around the opponent's king, and handles endgame scenarios.

PROCEDURE KingAdj(k SIMPLE_INTEGER)

The KingAdj procedure calculates the bonus for moving the king towards the opponent's king to mate. It adjusts the positional data arrays accordingly.

PROCEDURE PieceAdjust

This procedure adjusts the positional data arrays based on the presence of pieces on the board. It calculates the distance between pieces and adjusts their values.

PROCEDURE SetP(brik SIMPLE_INTEGER, distance SIMPLE_INTEGER, valuee SIMPLE_INTEGER)

The SetP procedure sets the positional value for a piece (brik) at a certain distance (distance) from the king. It is used to adjust the positional data arrays.

FUNCTION Eval(stilling STILLINGTYPE, Activity SIMPLE_INTEGER, Black BOOLEAN, alpha SIMPLE_INTEGER, beta SIMPLE_INTEGER) RETURN SIMPLE_INTEGER

This function evaluates the current game position and returns a score. It takes the game position (stilling), activity level (Activity), whether it's the black player's turn (Black), and alpha-beta pruning values (alpha, beta) as input. It calculates material and positional values and returns a final evaluation score.

PROCEDURE Initialize

The Initialize procedure initializes the positional data arrays (pdw) and sets default values. It is called once at the beginning of the engine's execution.

Code Behavior:

The PL_PIG_CHESS_ENGINE_EVAL package body contains the core logic of the chess engine. It defines various procedures and functions to evaluate chess positions, adjust positional values, and handle different game scenarios.

The PreProcess and PreProcessor procedures initialize and adjust the positional data arrays based on the game position. They set default values and make adjustments for pawn center types, king safety, and endgame scenarios.

The `KingAdj` and `PieceAdjust` procedures calculate bonuses and penalties for moving the king towards the opponent's king and for the presence of pieces on the board, respectively. These adjustments are made to the positional data arrays.

The `SetP` procedure is used to set positional values for pieces based on their distance from the king. This is a crucial step in evaluating the game position.

The `Eval` function is the main evaluation function. It takes the game position, activity level, player turn, and alpha-beta pruning values as input. It calculates material and positional values, applies various bonuses and penalties, and returns a final evaluation score.

The `Initialize` procedure is called once to initialize the positional data arrays and set default values.

Overall, this package body contains the core evaluation logic of the `PL_PIG_CHESS_ENGINE_EVAL` chess engine, allowing it to analyze and evaluate chess positions effectively.