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Personality types for Rodent chess engine

The goal of this document is to give some inspiration for creating personalities for Rodent III. It does not contain detailed description of personality options and their impact on playing style. Instead, it tries to share some of my experiences with personality creation, or with settings created by other people (hear me, Brendan J. Norman!).

I came to the conclusion that there are a couple of distinctive personality families that can be created for Rodent chess engine. This document tries to describe a couple of them. At the same time, it will show a couple of outliers – setups which behave in weird and wonderful ways, defying the classification.

Attackers

All you need to create an attacking personality is to set **OwnAttack** somewhere above 100. Of course this value should also be higher than **OppAttack**. This way in double-edged positions Rodent will prefer to attack enemy king rather than to defend its own.

Now there are three natural tweaks that enhance engine's agression. They can be used separately or in conjunction.

- attackers like active play, so it is natural to increase own mobility somewhere above 100, typically 110 to 150.
- attackers like to go after enemy king, so increasing king tropism to 50-150 looks like the way to go
- attackers favour initiative over material so decreasing material weight can result in awsome personality. By how much? Generally value like 90 is enough to see frequent pawn sacrifices. Anything lower will weaken the engine, but will inspire it to sacrifice pieces.

How far can one go with the parameters? The most aggressive personality I have created was Marshall. It had own mobility and own attck set at 150, and marginally raised knight value. However, you can go much further. Brendan J. Norman created Remy personality with attack percentage set to 400 and mobility set to 250! Of course it reduced playing strength to somewhere around 2400 Elo, but the playing style was stunning.

As for other possible tricks, just use your imagination. Do you want attacker that likes knights? Rise their middlegame material value. Bishops? Raise bishop pair bonus. You want to see certain kind of sacrifices more often? Lower midgame pawn value or decrease exchange advantage. Another obvious idea is to increase KeepQueen parameter, so that Rodent will try to keep its strongest piece on the board. Also, attacker should have some contempt thrown in, meaning that it will dislike draws.

One of the less obvious ideas that I had was to create a moderate attacker (OwnAttack set somewhere between 110 and 120) that slightly prefers own mobility, but cares for pawn structure at the same time. It played beautiful, logical games. I based Anand personality around this concept.

Diving a bit deeper in the sea of counterintuitive possibilities, you obtain passive-agressive chess personality, subject of the next paragraph.

Passive-agressive

I have soft spot for this group of versatile personalities. They are made by increasing both **OwnAttack** and **OppMobility**. This basic design means that passive-agressive personality will try to restrict enemy movements and then deliver a final punch. But this is not the end of the story. Should the engine fail to restrict the opponent and reach position with balanced mobility, it will feel slightly uncomfortable. This will lead it to reducing perceived inequality by exchanging pieces. In short, this setup feels like two styles in one.

There are basically two ways to enhance passive-agressive personality. One is to make it a gambit player, sacrificing material in order to keep opponent locked in. The other is to tune it like a positional personality that holds a devastating punch in reserve. This effectively means merging passive-agressive trait with the next cathegory.

Blockaders

It's hard to teach the chess engine to play a closed position decently. I don't claim that I managed to reach that goal with Rodent (even though some effort to implement proper handling of pawn chains has been made). Rodent, however, can at least love and cherish closed positions. Personalities with this trait can be built around increasing the little parameter called **KnightLikesClosed**.

This parameter signifies a bonus awarded to a knight for each pawn of the same side present on the board. Sounds too technical? Let's put it like that: when there are many pawns on the board, increasing this value will make Rodent love the knights. So it will probably swap a bishop for a knight, and then will try to preserve knight's apparent advantage, keeping as many pawns as possible. You can make this scenario even more likely, decreasing bishop's value or bishop's pair bonus. Increasing opponent's mobility value has great synergy with Blocader's traits. Rodent's Nimzowitsch personality is a mix of Blockader and Passive-Agressive setups, with the increased Outpost weight thrown in. On the other hand, Petrosian personality is a pessimistic blockader that overvalues both enemy attack prospects and enemy mobility, but is likely to play an exchange sacrifice.

Outlier: Bibi

Boban Stanojevic, while trying to create Karpov personality, discovered paradoxical setting that behaves like a blockader only when playing without a Bishop pair. It requires setting BishopPair as high as 75 and KnightLikesClosed at 9 or 10. Wile both values are exaggerated, they maintain almost the same proportion as in default Rodent settings: 75 / 9 = 50 / 6. This means that, all else being equal, probability of unforced BxN exchange remains roughly the same, but its effects are more pronounced. The engine is likely to sacrifice a pawn for the bishop pair, and while it enjoys this kind of advantage, it opts for the open game. On the other hand, playing with BN or two knights against a bishop pair, it tries to keep many pawns on the board, keeping the position closed. I have built Bibi personality around this concept. Other changes were: increasing Bishop value by 10 cp, increasing Rook value, raising FianchBase to 9 and pawn chains weight to 140. Note how an interesting personality has been created mostly by tweaking material-related parameters.

Tricksters

Trickster personalities are created by decreasing both own and opponent's attack values in such a way that own attack is decreased a bit more. To counterbalance it, you may want to increase

engine's own mobility too, but you may as well go the other way (Larsen personality is a mix of trickster and blockader). Trickster's games look logical and fragile, as it is likely to come under attack and suffer not even for material gains, but for positional bonuses. Increasing parameters like outposts, lines or pawn structure magnifies this effect even further. Trickster with material set to 90 can be really funny – it sacrifices pawns for everything, but usually not for a direct attack.

Pessimists

Pessimists are notoriously hard to tune. Values used in them should be lower than in case of other personalities. The reason is simple – if you increase both opponent's mobility and opponent's attack prospects too much, the engine will have nothing to play for. Therefore you should have some compensating factor – outposts, center control, passed pawns, whatever.

Evaders

The idea of compensating for program's aversion to be under attack naturally leads to the notions of evading personality, in which OppAtt and OwnMob are increased. Personalities of that kind will prefer active play, and will generally try to keep the opponent busy, denying him time to mount the attack. Out of current personalities, Spitfire employs this strategy.