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Ronald de Man, [alias Syzygy](#),

a Dutch mathematician, computer scientist and IP lawyer, in the 90s researcher at [Eindhoven University of Technology](#), competitor at the [International Mathematical Olympiad](#) 1990, winning the Silver medal ^[1], and the [ACM International Collegiate Programming Contest](#) 1995, to win Bronze within the *ARoMA* team from [Delft University of Technology](#) ^[2] ^[3]. He is co-developer of the [Linux desktop environment](#) and [graphical user interface GNOME](#) ^[4], and as chess programmer author of the chess and [Antichess](#) ^[5] playing program [Sjaak](#), which plays at [FICS](#) under the handle *TrojanKnight* ^[6] ^[7] ^[8]. He further ported [Stockfish](#) to plain C, dubbed [CFish](#).

Scoring Root Moves

[Ronald de Man](#) proposed a method to apply [randomness](#) ^[9] and/or bonuses, i.e. developing bonus, or penalties suggested by an [oracle](#), in [scoring moves](#) at the [root](#) without any changes in [alpha-beta search](#) or [leaf evaluation](#), and without any problems with the [transposition table](#) ^[10].

First of all, don't worry, it is possible. But you should not try to pass the bonus to the tip nodes. That would indeed give hash problems. The solution is to not change anything in your Search() procedure. That already solves all potential hash problems. You just add the bonus AFTER Search() has returned a value for a particular root move. So that would be done in your SearchRoot(). What you basically do

there is change every occurrence of

```
value = -Search(-beta, -alpha,...)
```

in

```
value = bonus[n] - Search(bonus[n]-beta, bonus[n]-alpha,...)
```