

Syzygy XML

A file called `syzygy.xml` must reside in the same directory as the `syzygy` executable. It defines gameplay in the following manner.

There has to be a `params` element with a `level` attribute that is "Global" that contains values for all of the game parameters. This should be first, followed by `n` `params` elements specific to a level indicated by a positive integer level attribute. Global parameters will be used for any parameters that are not defined specifically for a given level. The game will repeatedly use the `n`th level `params` for levels greater than `n`.

Parameter values

- *BaseGameDuration*: The maximum amount of time in the game timer in milliseconds.
- *TileMinLife* and *TileMaxLife*: When tiles are added they have a lifespan that is a random number of milliseconds between *TileMinLife* and *TileMaxLife*.
- *MinWordsPerLockIn*: The player can lock in tiles that define at least *MinWordsPerLockIn* new words. I'm pretty sure I want this number to be 2 but it is interesting to experiment with it set to 1.
- *BonusTimeMultiplier*, *BonusTimeAddend*, and *BonusTimeExponent*: Let x be the raw score the player receives for locking in some tiles i.e. the Scrabble-like score. The game timer is increased by $BonusTimeAddend + BonusTimeMultiplier * x ^ BonusTimeExponent$ milliseconds.
- *LockedInLifeBoostMin* and *LockedInLifeBoostMax*: When a tile is locked in its remaining life is augmented by a random number of milliseconds between *LockedInLifeBoostMin* and *LockedInLifeBoostMax*.
- *TilesForLevelUp*: Number of tiles the player needs to lock in to achieve a new level.
- *TileDeathTimePenalty*: When a non-locked in tile expires, *TileDeathTimePenalty* gets subtracted from the global game timer.
- *NumLetterBonus1* and *NumLetterBonus1Multiplier*: number of letters needed to receive the first long word bonus and the bonus multiplier e.g. triple word score, double word score.
- *NumLetterBonus2* and *NumLetterBonus2Multiplier*: Same as above but for a second long word bonus. *NumLetterBonus2* should be greater than *NumLetterBonus1*.
- *LevelUpBonus*: The player's score is increased by new level times *LevelUpBonus* upon reaching a new level.
- *NumInitialTiles*: Number of tiles injected at the start of a game.
- *LevelMultiplier* and *LevelMultiplierExponent*: Let x be the raw score the player receives for locking in some tiles and let lev be the current level. Then the player's score is increased by $x * LevelMultiplier * lev ^ LevelMultiplierExponent$ on a successful lock in.
- *NumTilesInInjection*, *TileInjectorDurMin*, and *TileInjectorDurMax*: *NumTilesInInjection* tiles are injected at random intervals. After tiles are added a new time is generated with a value between *TileInjectorDurMin* and *TileInjectorDurMax*, where the two times are in milliseconds.

- *JuiceInjectionAmount*: Amount of time added to each target letter little when a juice tile is applied.
- *RandomLetterDuration*: Duration in milliseconds that random letter special tiles remain on each letter.
- *BadLockInTimePenalty*: Time deducted from the game timer when the player attempts to lock in invalid tiles i.e. tiles that don't form a legal crossword grid containing *MinWordsPerLockIn* or more words.
- *RandomLetterTileFreq*, *JuiceTileFreq*, and *BombTileFreq*: These parameters control the frequency that newly injected tiles will be each of the 3 kinds of special tiles. The values of these parameters are integers that act like probabilities. Normal letter tiles are injected with frequencies that reflect the frequency of their usage in English. For example, 'E' has a frequency value of 12 and 'A' has a value of 9, so setting one *BombTileFreq* (say) to 10 means that bombs will be slightly more common than A's but less common than E's.
- *RechargeOnLevelUp*: This is an integer parameter that acts like a Boolean. If it is set to zero, the game timer is not refreshed upon a level up.
- *SpecialTileDeathMultiplier*: Letting special tiles die costs *SpecialTileDeathMultiplier* * *TileDeathTimePenalty* milliseconds.