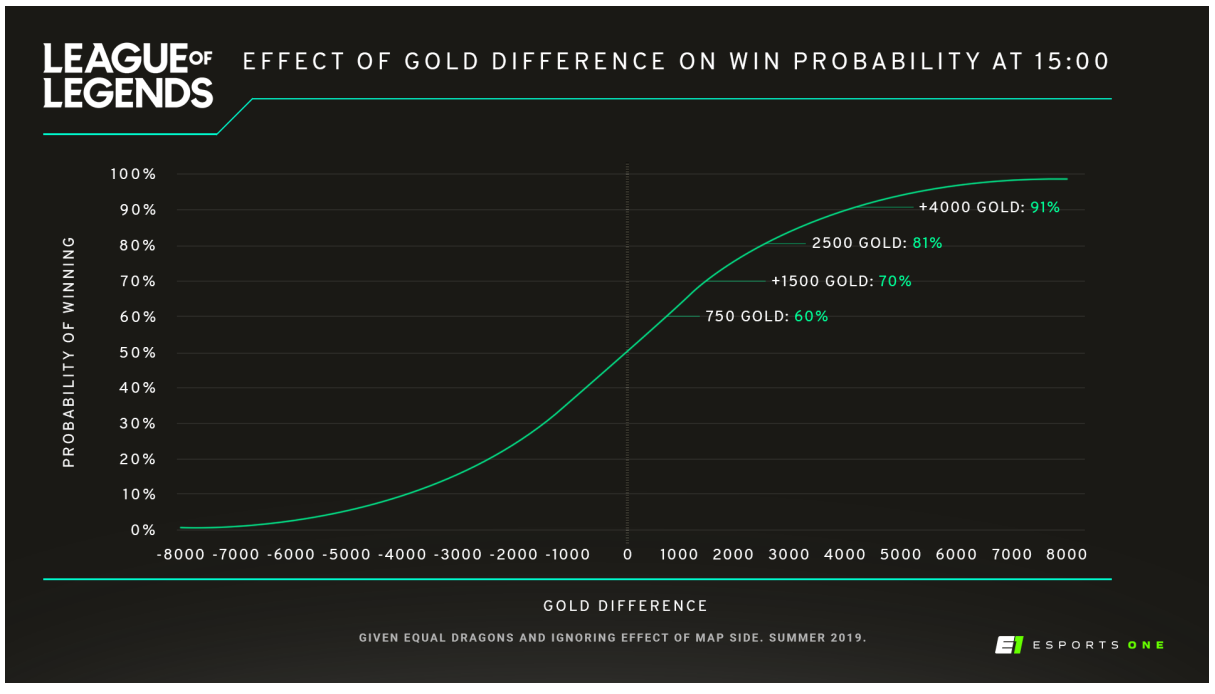

STATS THEORY

Early-Game Rating 2.0

Tim Sevenhuysen | September 26, 2019 12:59 AM

Oracle's Elixir's *Early-Game Rating* is getting a makeover! Beginning with Worlds 2019, teams' ratings will be calculated using the new system.

Jump to charts showing the relative value of gold and dragons.

Early games always seem to be more explosive at international events, and the 2019 meta has been heavily early-game focused, so I expect EGR to be a very informative metric throughout the tournament.

What is *not* changing about EGR and MLR?

Fundamentally, the definition of Early-Game Rating isn't changing: EGR calculates a team's probability of winning the game based on the game state at 15:00, and reports that probability as a rating. A team's EGR across multiple games is the average of their EGR from those games.

EGR's counterpart metric, Mid/Late Rating (MLR), is also remaining the same: take the actual game outcome, compare to the probability at 15 minutes, and then average the differences across multiple games. In other words, the MLR is a +/- that shows a team's actual win rate compared to the win rate we would expect to see based on their early-game performance.

The Changes

EGR is becoming more nuanced and accurate by accounting for the types of dragon killed, rather than treating all dragon types as the same. This same change is already built in to the comprehensive win probability model that we are building at Esports One, so I wanted to port it over to EGR as well to maintain consistency.

I've run the model on updated 2019 data (which I do regularly anyways, to account for changes in the meta), and I added some additional pro leagues to the dataset. This increases the sample size and, therefore, the strength of the model.

Findings

The chart below shows how gold leads translate into win probabilities, in this most recent update of the model from summer 2019.

A +1,000-gold lead at 15:00, all else being equal, means approximately a 64% probability of winning the game. At +2,500, that climbs to 81%, while +4,000 is the threshold where a comeback by the trailing team is less than a 1-in-10 chance.

Dragon Value

In summer 2019, the statistical value of taking dragons has been quite high. But different dragon types naturally have different levels of impact on the game.

The chart below shows how much each dragon type benefits a team's EGR when all else is equal at the 15:00 mark. Bear in mind that this specific model is tied to 15:00, and the value of each dragon is different during different phases of the game.

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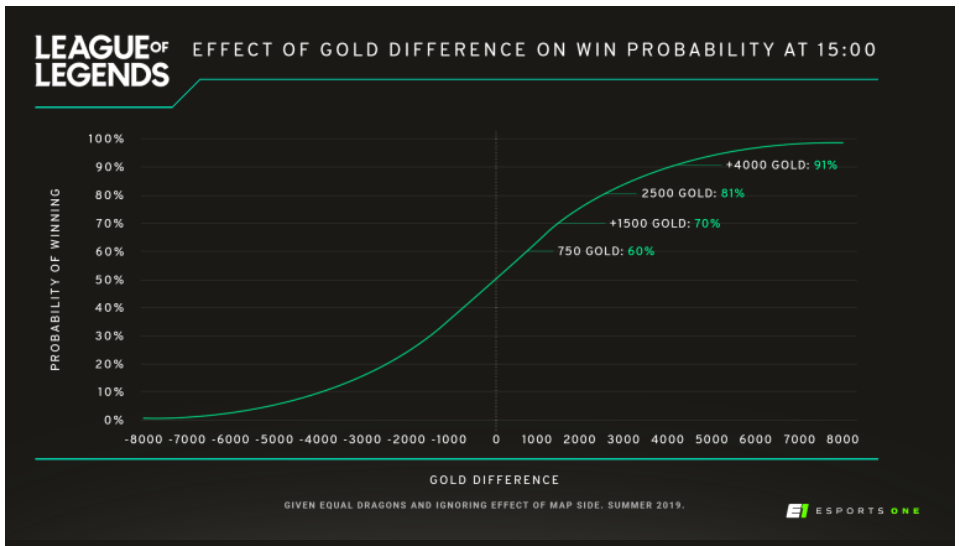

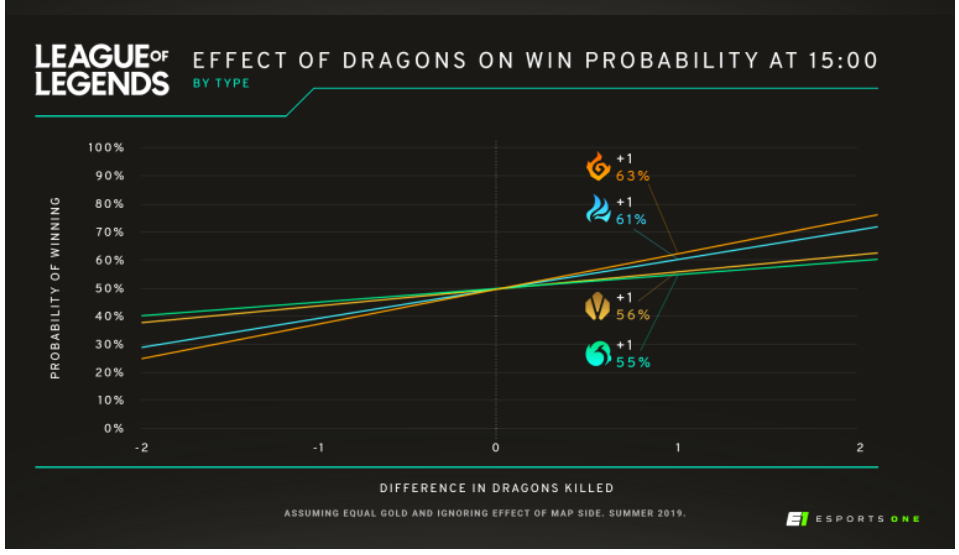

As expected, **infernal drakes** are incredibly powerful and should be highly prioritized.

Cloud drake's high standing in this model may catch some people off guard. The narrative of cloud drake being weak has clung to it ever since elemental drakes were first introduced to the game, but that perspective is severely outdated. Between the buffs the cloud drake received quite some time ago, and the inherent value of movement speed in pro play, where movement between lanes and objectives is so important, the cloud drake buff has been "secretly" OP for a pretty long time. If these numbers don't convince you of cloud drake's value, I'll have to work harder in future articles!

The relatively low value of **mountain drake** pre-15 does not necessarily mean that it has low value at 25:00. (In fact, mountain drakes are the only dragon whose effect on win probability increases over time, but that's a different model!)

The low value on **ocean drake** is somewhat surprising. I suspect that the ocean drake's value would be higher in the 6- to 10-minute range. Even so, this model suggests that nabbing an early ocean drake isn't the most valuable action unless a team can use the added health and mana sustain to win trades, force recalls, and thereby grab gold advantages in lane pretty quickly.

There's a lot more to explore around the effects of dragons on game outcomes, and I'm working on a more comprehensive analysis that is tied to full-game modeling rather than only EGR. Stay tuned for that.

Tim Sevenhuysen is the founder and sole developer of Oracle's Elixir. He is currently the Head of Esports Data Science for Esports One, led Shadow.gg from 2017 to 2019, and was Statistical Consultant for Fnatic in 2015. Follow Tim on Twitter at @TimSevenhuysen.

data science *dragons* *early-game rating* *gold* *modeling*