



A LEAGUE OF LEGENDS[®] ANALYSIS

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~A League of Legends Analysis~

| Foundation to failure | Version 1

How poor fundamentals and changes in philosophy have cultured a problematic game
by
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League of Legends is currently the largest MOBA (Massive-Online Battle Arena) on the market for a multitude of reasons; appealing visuals, responsive gameplay, a massive roster of diverse characters and a large quantity of incredible music & cinematics to be enjoyed by fans and the public alike. On top of all this, e-sports as a medium owes most of its growth to games such as League of Legends and Riot's immense push for attention, causing League to be the largest e-sport in the world by a considerable margin.

However...

The flaws regarding the game are prominent causing constant discussion among the community with rambles, rants, poor reviews, forums and polls urging changes. Mass attention on terrible balance changes and poor designs year after year after year after year after year.....

This begs the simple yet complex question.

How?

How can the one of the most profitable video game companies with years of experience cause consistent repeating issues. The answer lies in the absolute core fundamentals of the game and how its evolution is incompatible with its foundation and ever changing philosophies of design.

[please note this paper will be consistently updated with more content]

Section 1: DOTA

Foundations which stand strong should never be forgotten

Before we can talk about LoL, we first need to talk about the grandfather of the genre and subsequently League's primary inspiration. *There will be an enormous amount of references to DOTA moving forward for good reason. Understanding the grandfather of a genre is critical to getting a correct outlook.*

DOTA (Defence of the Ancients) was a Warcraft III mod made in the early days of the modding scene. It is a 5v5 PvP based game mode consisting of a map of 3 lanes, two bases, two jungles and a river running through the middle, a design which has not been altered much throughout the genres history.

Each player chooses a hero consisting of:

- Health
- Mana
- Stats
- Abilities
- Inventory

And thus the basis of a MOBA was born, but enough history, let us dive deep into the core.

Warcraft III used a turn-rate system in which a hero would only move in the given direction once they had turned around and faced said direction. Turn rates ended up being an incredibly important factor moving forward and were retained in DOTA 2 (However they have been significantly sped up in recent years).

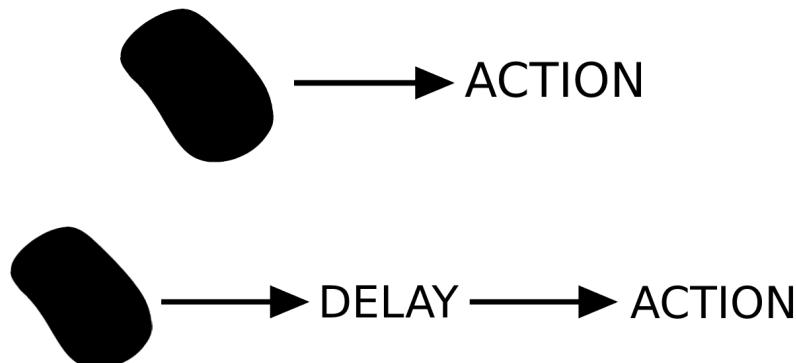
Turn rates are important as they add a layer of depth for the most basic of interactions, a mouse click. This delay extends to every aspect of the game, for example:

Using an ability on an enemy requires you to be in range, if you are not in range and they are behind you, you must first turn, then move, then the ability will be used. The movements

considerable delay adds a layer of depth as the amount of mental effort required to account for said delay increases average focus levels.

To extend this to another example, firing a gun. Games which use hitscan (raycast) bullets do not require as much mental effort as a projectile bullet. Why? Because projectiles have to be accounted for, raycasts do not. Thus if an enemy is moving to the left and you are holding a raycast weapon, only the enemy's movements have to be accounted for, whereas with a projectile weapon, both the enemy **and** the bullet must be accounted for.

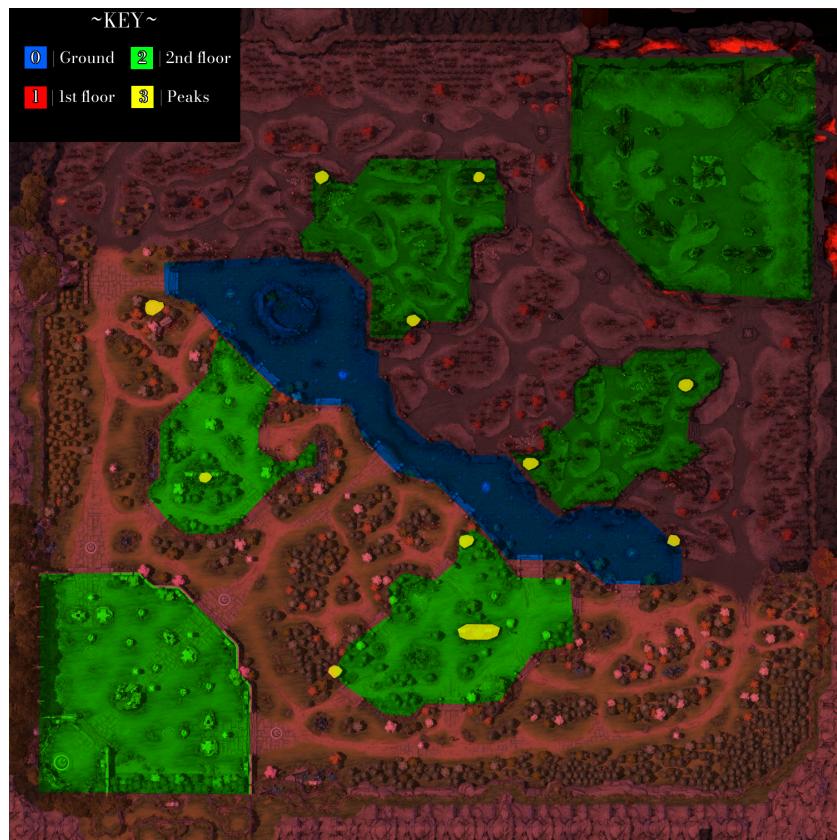
Thus in the DOTA example, the delay is an extra layer of thought on the player's end which enhances moment to moment gameplay in an indirect manner.



Adding a delay to the majority of actions sounds like a method of making a game unenjoyable. This is purely subjective and is one of the primary reasons many people do not enjoy DOTA. Direct requires less thought but does increase the response time and thus the appropriate neurological response from the player.

Below is a list of games with their input rates and input complexity to add context to DOTA





Part of the reason many quit DOTA is also due to the number of interactions on both the micro and macro scale. Moment to moment gameplay has this extra layer of depth but so does the macro level.

Like the majority of games, the goal is clearly defined, it is the steps taken to get there which define the game itself. In the case of a MOBA the 5v5 aspect of PvP is not the whole story, but rather the addition of the map and its elements which tell the rest of the tale. Much like the micro aspects having an extra layer of depth, these larger elements also have layers of depth to them.

Jungle: Section 1 | Jungle camps (Natural creeps)

Jungle camps exist in both jungles and provide the player with gold, xp and items in the case of DOTA 2. The principle is simple, kill camp -> get reward, but how do you enhance this. DOTA achieves this in a number of ways, the first of which is camp stacking and timers. If neutral creeps leave their camp to chase a player and the next camp spawns, the chasing creeps do not disappear. This leaves two sets of creeps occupying the same camp, thus creating a stack, thus creating the term 'camp stacking' or 'jungle stacking'.

This minor addition massively expands jungling as a layer of both micro **AND** macro depth has been added:

Micro: Moment to moment interaction of moving camps away far enough to allow another to spawn

Macro: Knowing and tracking the spawn timers of each camp to effectively stack

Jungle: Section 2 | Tiering

Camps are sectioned into the following tiers:

- Small
- Medium
- Large
- Ancient
- Roshan

Going from easiest and least rewarding to hardest and most rewarding. This level of segmentation is yet another layer of depth and also minor control over gameplay flow. For example, ancient camps are significantly more powerful than the previous three, thus, early game these camps are not touched, or are they?

The defined tiering of each camp spawns strategies to handle them effectively, combined with the ability to stack camps multiple scenarios develop. Some examples:

- Stack small camps to get more reward
- Go all medium on first pass
- Have teammate assist in the process such as multiple stacking
- Get ancients as early as possible through team support
- etc.

Jungle: Section 3 | Spawning

The third enhancement is the spawn system. As camps are defined by tiers so are the possible creeps which can spawn. Each camp has a set amount of different creeps, each with their own models, animations, sounds, mechanics and rewards (numeric changes). Spawning is also handled randomly making each encounter more engaging and jungling as a whole more intriguing as the camp is always unknown on first approach. On top of this, camp stacking will NEVER spawn the same set of creeps, further sending the jungle into randomness.

Camps being randomised might sound good or bad on paper but a quick dive makes things a little complicated. Randomness vastly improves a game's replay value but in a competitive scene brings a great deal of unwanted variance. The genre as a whole thrives off of variance and dynamic elements but competition is best left regulated, constrained and refined, so how does DOTA work if there is a great deal of randomness.

Before we understand this it is extremely important to note that DOTA's popularity as well as its competitive success is due to many unique elements, such as the jungle system and its randomisation. Making something which shouldn't work function makes said game stand out from the crowd. So random jungles do work?

Yes

Randomisation only applies to the set of enemies spawned in said camp, with each tier of camp having a different pool of sets. This is regulated/deterministic randomness. Deterministic randomness can add a significant amount of dynamic nature to an element of a game while still being controllable and somewhat predictable depending on the implementation. To compensate for the randomness each camp provides the same amount of xp, preventing levelling from being dictated by chance.

In short, jungle camps being different only changes the mobs fought to improve moment to moment gameplay but the macro impact on the game is balanced in a way to prevent randomisation from impacting anything.

Jungle: Section 4 | Openness

The fourth and final enhancement is the openness of the role and its purpose in the map space. In DOTA, all heroes are junglers and all heroes can and most likely will jungle at some point, however certain roles do so more than others and certain heroes are better equipped to clear. For example, carries tend to do the most farming as they require the most gold to obtain items, thus they jungle the most. **In short, jungling is NOT directly a role in DOTA but rather a tool and a playing field.**

The openness of the jungle naturally leads itself to interesting scenarios across all aspects of the game; team composition, roles, map awareness, vision, player knowledge etc.

DOTA's jungle will become extremely apparent when League's jungle is discussed and is incredibly important to understand why it alters the game so much, and for the better.

But for now, let's move onto the third and final key:

The map and its objectives.

As previously stated the map is split into 3 lanes, two jungles, two bases and one river running through the middle. However each one of these aspects, as is the DOTA way, has a significant amount of depth to it. Before we dive into each of these let's get a higher level look as to how the map is handled.

Both teams have their own side, in this case Radiant (Bottom) and Dire (Top). Radiant and dire are separated visually to make it incredibly clear which side is which, however this does not alter gameplay and was not an issue when LoL chose a single theme for its map.

DOTA's map is considerably larger than LoL's as well as being more intricate. This is not necessarily a good thing, especially for newer players. This larger scale and deeper complexity per area leads to far more interesting gameplay along with the capabilities for more interesting updates, abilities and general moments. However, LoL keeping it simple greatly assists in keeping the focus on the core gameplay and is much easier to grasp for newer players, so this is purely subjective. REDO?

Map: Section 1 | The Y axis

DOTA is 3D, League is 2D (Pseudo 3D). This distinction leads itself to drastic changes into how each game's maps are designed and certain gameplays aspects which will be discussed later. Being true 3D primarily affects vision & warding but also impacts many champion abilities. Being true 3D makes the Y axis a valid playspace and does affect some abilities in DOTA, a perfect example of this is Faceless Void's Chronosphere ultimate.

ADD IN-GAME PICTURE

Chronosphere creates a sphere of influence in which everything inside (Except for Faceless Void) is frozen in time, being 3D means abilities which may be able to go over or collide in the Y axis do. Examples being Tiny's throw ability and Monkey King's tree leaping ability.

In LoL abilities which act upon the Y axis don't actually do so under the hood, only visually. This leads to scenarios where certain abilities don't make much sense and are misused in gameplay. A prime example of this is Tristana's W (Mobility skill), an upwards launch which makes the player travel a good distance in the given direction.

ADD VISUAL

As we can see, Tristana's location in game appears to be 3D, curving upwards and landing at the given location. However all that is happening is she is being shifted along the ground, this means that ANY form of collision still applies in full effect. This also means that walls created by players do not have height.

So if LoL doesn't have a Y axis then how does terrain work? It appears to be 3D also as certain abilities for example Tristana's W do in fact traverse the terrain. In reality what is happening is the terrain is a simple polygon based collision zone, given that everything is 2D all certain abilities have to do is mask themselves from certain colliders.

[In game development it is common to use a programming technique called a 'mask', masks are used to check a large amount of things against other things. For example, if two colliders are on the same mask then they can collide with one another, if they were separate while they are still both valid colliders they would not be able to interact with each other. When abilities like Tristana's W are activated, the mask regarding terrain is disabled, allowing the traversal. Whether or not the given input works can be calculated instantly, for example if the player used Tristana's W and tried to jump into a solid piece of terrain instead of over, the collision mask will not change.]

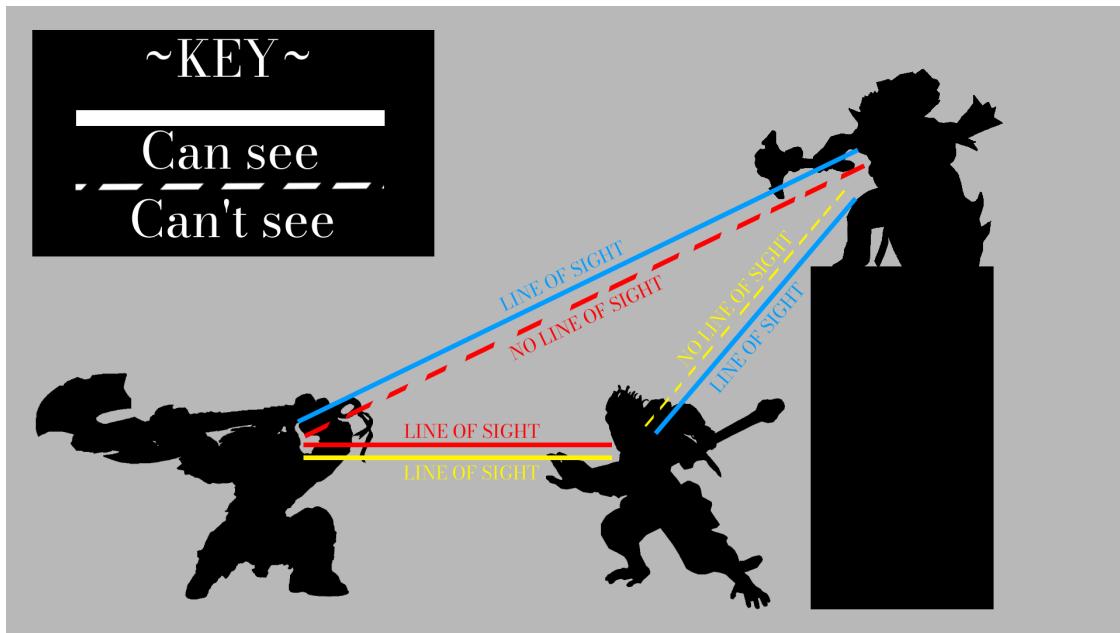
Let's explore other areas and see how the Y axis can change things.

Map: Section 1 | Sub-section 1 | Vision

Vision is a key aspect of MOBA's and the inclusion of taking into consideration the Y axis, like previously mentioned mechanics, adds a layer of depth on both the micro and macro scale. First and foremost the map is constructed as follows:

Here there are 4 segmentations, the yellow zones are dedicated warding zones which provide ideal line of sight to any ward placed on top of one. These peaks are marked with a texture to separate them from parts of the terrain, helping on board newer players. The river (Ground level) cannot see the majority of the 1st floor. The 1st floor cannot see the 2nd floor. However the 2nd can see the 1st and the 1st the ground. Subsequently in certain spots the 2nd can see the ground.

Having the river as the lowest part makes it a high risk high reward area, but how? Vision works like so:



{DOTA's Y axis vision based system in action with three heroes}

Thus in the river most aspects of the surrounding map are higher and therefore out of sight, but, those in said areas can see into the river, producing a two way blind spot and **giving the players outside the river an advantage in vision and those inside the river an advantage in map access.**

This dichotomy makes the river an interesting zone due to it essentially being a dangerous but powerful shortcut to most the map, hence why it also gets the majority of ward vision. Wards are an interesting inclusion as they allow map vision as oppose to player vision, but they still apply to the same rules of the Y axis. To an extent. Wards are independent from the player, are much smaller and have a larger vision radius, thus they can be placed in far more locations the player can get to and see far more.

Wards are the most useful, core item in the game. Their utility is unmatched and there is a whole meta game involved with them, said meta game being ward placement and timings. Yet again there is another micro macro mechanic which is integral to success.

Vision is so important to understand and has such depth with the Y axis and warding mechanics that it can be a leading factor in the difference between casual and pro players. A great deal of gameplay is dictated by vision control.

Map: Section 2 | Asymmetry

The map is split into 10 core sections:

ADD DIAGRAM

And has two sides, Radiant and Dire:

ADD DIAGRAM

From now on Radiant (Bottom side) will be referred to as Blue and Dire (Top side) will be referred to as Red.

Asymmetry has the obvious benefit of breaking monotony as well as creating points of interest. For example, if DOTA's map was symmetrical, we would end up with the following issues

ADD DIAGRAM

- No distinction between sides
- Points of interests can still be defined but not refined
- Heroes indirectly lose identity and may even have their designs broken
 - Given an asymmetrical map, certain areas are essentially guaranteed to play better with certain heroes

Map: Section 3 | Towers

There are 4 towers per lane and 5 per base, totalling 22. Towers play the role of preventing the opposing team and their lane creeps from simply waltzing into your base, they are also the core reason for game periods, those being:

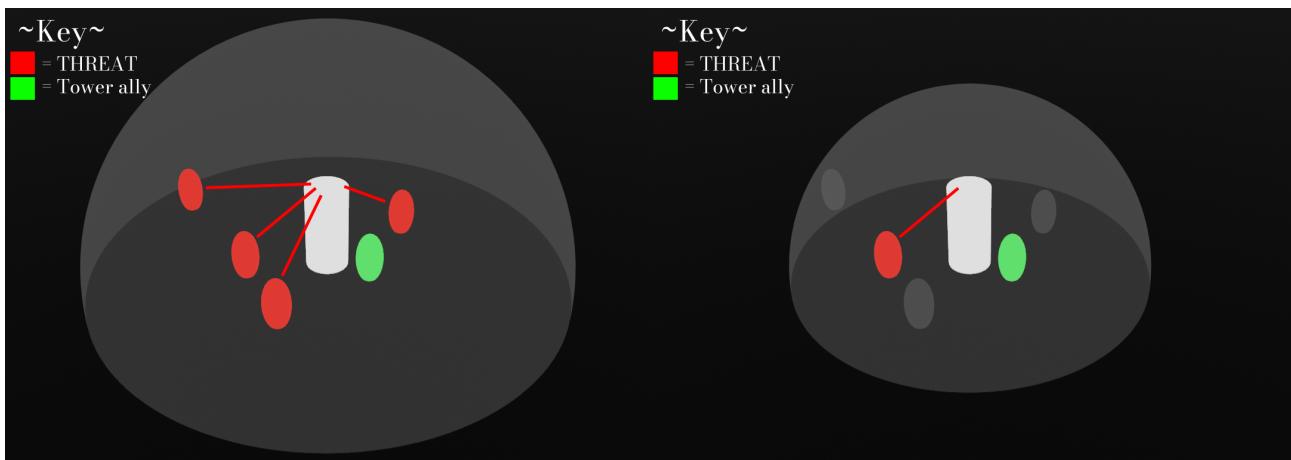
- Early game
- Mid game
- Late game

Towers are best thought of as checkpoints disguised as enemies (They deal damage and grant rewards on kill) whom control the flow of the game due to map influence.

Map: Section 3 | Sub-section 1 | Early game

In the early game towers are the most threatening as the players are at their weakest. This creates a term known as 'tower-diving', where you go into tower range to attack. Highly risky. However DOTA does something League failed to understand. Towers are an obstacle not a barrier. They are merely deterrence with the intent to fend off the opposition, not to outright kill them or ruin their plans entirely by forcing a recall.

This is achieved by the fact that DOTA's towers deal little damage. To compensate however they are more consistent and have a longer range than their League counterpart. They also have the drastic difference of being able to attack multiple targets, making diving a different story. The lack of damage in fact makes towers a boring but necessary addition, let's dive into what makes a tower a prominent gameplay element.



{DOTA: Left, LoL: Right}

Here we see that DOTA's towers have more radial influence and have the added benefit of being able to attack everything in its range, but deals chip damage. Whereas League's is a single target behemoth capable of quickly killing whatever is in its smaller radius of influence. So which is the better design?

As with many aspects of a PvP game and of ones with such vast possibilities it is a difficult question to answer. On one hand DOTA's provide a way of fending off players while still allowing the full range of gameplay, just in a contained smaller time frame. LoL's however force a certain way of playing and goes all out on 'diving' as a mechanic. Each tower suits its respective game but League falls behind when it comes to map access and lane distribution. What does this mean?

LoL having such capable towers essentially slices off part of the lane, like so:



If we were to do a contained heat map which takes into account the surrounding area of a lane and the towers influence, we notice that DOTA has a far more open play space. Is that necessarily a bad thing? No. The best designs are often the most constrained due to the refinement which can be applied, but the side effect of this constraint is monotony and pressure.

Due to LoL's towers having such a powerful influence the 'effective' play space is noticeably impactful in comparison to DOTA. **Freedom vs constraint.**

Players in a lane get funnelled into said lane as the towers bounds is essentially off limits and can only be properly dived in a handful of solo scenarios OR if the team is there to help. Thus, early game lane gameplay in League typically boils down to the following aspects:

- > Stay in lane and do back and forth trades
- > Farm minions
- > Stay away from towers 95% of the time
- > Await a gank (Teammate entering lane)
- > Tower dive when rarely possible

Whereas DOTA's early game lane gameplay boils down like so:

- > Stay in lane INCLUDING within tower range
- > Trade back and forth, including under tower range
- > Tower dive solo or with team if needed
- > Ganking is not as important and thus retains focus on lane
 - Early game = micro, focus on winning lane, use the map to its fullest while still feeling minor pressure from the towers influence
 - Ganking however remains an excellent choice and towers are NOT a safe space

Here we can see DOTA's far more open gameplay naturally leads to a more interesting early game gameplay loop, towers not being a safe space for the ally of it makes each moment more tense as safety is not guaranteed, retaining a higher engagement rate at all times. It also opens more of the map up at any given point, increase team communication and reduces friction as the chance of things going wrong during a gank (Regarding the towers influence in said gank) is significantly lower, and finally provides those whom are allies of the tower a minor advantage to turn the tide of battle (Without feeling the loss of power taken directly from them).

The fact that an ally tower becomes an assistant and not a dominant force in a fight grants more opportunity for player expression and is rarely played around, thus retaining the same state of flow. LoL's towers will almost always be the dominant player in a fight under its influence and thus player expression is watered down and the flow state again shifts into a different state (Dodge and let the tower do most the work).

One can argue that having the tower assert dominance in its respective scenarios creates a new paradigm by much more clearly defining the player + tower 'teamplay'. While true that having greater tower strength does provide a different play style and turns the tower into a highly effective teammate to play around, it also increases stress and reduces overall gameplay expression.

Let's create some fake scenarios to further demonstrate this:

1) League towers |

- Enemy jungler ganks lane when you are low on health, requiring you to go into ally tower range.
- Jungler and laner decide to tower dive while you are on low health and are too pressured to back
- Tower engages jungler as they go first, dealing a large portion of damage and allowing you to focus on staying alive.
- Due to small tower range (in comparison to DOTA), high enemy damage (An issue discussed later), low health, single tower targeting only and high champion mobility. The gameplay space to work with is compressed and condensed into a small period of time.

2) DOTA towers |

- Enemy laner and/or jungler enter lane when you are low on health, requiring you to go into ally tower range
- Enemies decide to tower dive while you are low on health and are too pressured to back
- ALL enemies start taking damage at a further distance to the LoL counterpart
- Due to tower NOT taking over the scenario, larger player space, lower champion damage/higher survivability and low champion mobility (Turn rates as an example). The gameplay space is NOT as compressed and while still condensed into a shorter, more intense period of time, the disparity between gameplays is nowhere near as drastic.

Thus we finally end up back at the original statement:

"DOTA does something League failed to understand. Towers are an obstacle not a barrier"

Early game is hindered by the extreme pressure towers apply to the laning meta game and applies a large amount of pressure on every players performance, with little room for error in the majority of cases. This also further enhances the pressure of the jungle role, a role which will be discussed in detail later.

This extra level of pressure makes frustration a more common occurrence in every stage of the game and reduces the available play space and play states to express skill or teamwork.

The following balance can be applied while still retaining the aspect of two gameplay states:

Let's take a base line example:

LoL tower damage: 220 per shot

LoL tower fire rate: 0.83 per second (1 shot every 0.83 seconds)

LoL tower range: 800 units

1 unit = 0.8cm

100 units = 80cm

800 units = 640cm or 6.4m

Ashe movement speed: 325 units per second or 2.4m/s

Ashe health at level 1 and 0 items: 640

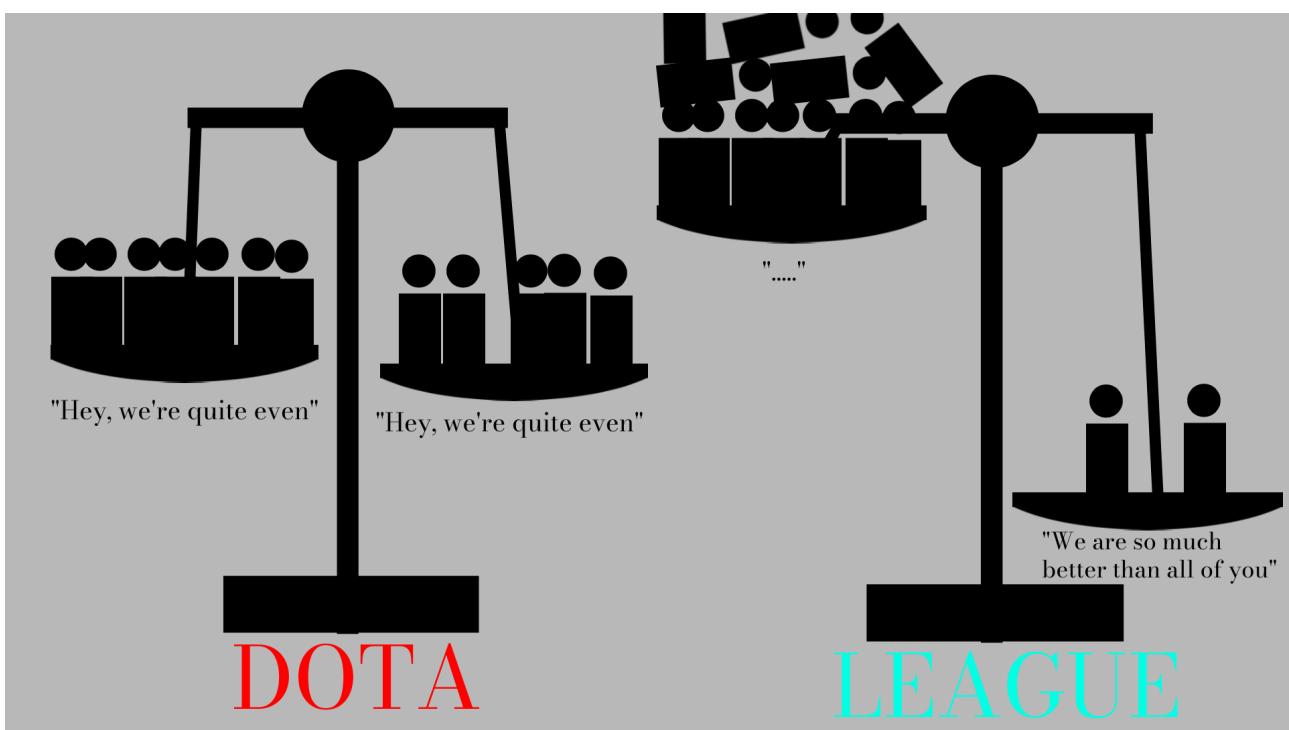
Given these values, assuming Ashe is starting from the towers centre point and moved in a straight line to the edge of the radius, she will take 2 shots and be dealt 220 damage. Assuming at full health prior to tower damage, she now has 420 health and lost 34% (floored). As a rough conversion equivalent to DOTA, Ashe would take around 12-15% damage in the same period of time, however remember that multiples Ashe's would all take 12-15%.

Halving tower damage would provide the ideal solution as early game would not be as hindered by tower influence and making ganking less problematic. It is best to shift the rate of successful ganks upwards to increase player satisfaction, this minor change would NOT alter the principals of teamwork and skill behind a tower dive. It would merely make them more common and successful while opening up more skill expression and teamwork as the towers dominance in damage distribution is reduced.

Map: Section 3 | Sub-section 2 | Specialised designs

So, League's towers are threatening, zoning structures which split gameplay into one monotonous section and one exhilarating, high stakes section. But what if there were champions who were designed to play to the fact that towers are such a threat. There are, plenty in-fact, but we have already hit a problem.

DOTA's towers being an annoyance first, threat second, levels the playing field of hero design and balance because for all intensive purposes everyone is just as effective at tower diving as each other, with some exceptions. In LoL, certain champions are vastly superior at diving and some are outright awful and shouldn't go near a tower. While design specialisation is beneficial to uniqueness and garnering interest in a champion, it also throws balance fundamentally out of sync, like so:



{Exaggerated scales of champions/heroes tower diving potential}

So in summary,

DOTA: Because the threat is minor, everyone is capable, balance is more even

League: Because the threat is major, certain designs thrive, balance is off

Map: Section 3 | Sub-section 3 | Designing our own tower

So we have discovered that League's towers inherently throw balance out because their power requires specialised champion designs to be able to deal with them and we have discovered that DOTA's creates an even playing field due to being 'weak'.

So, how can we create a tower which is more threatening than DOTA's but still keeps an even playing field.

First, let's make our tower instantly kill anyone (Absolute) when it attacks, have a range in-between that of LoL's and DOTA's and be able to target multiple enemies at once. On first impression this tower seems overpowered and would result in it being the most dominant aspect of the game, however, we have not specified the rate at which it attacks nor a delay.

If we set it so each tower shot instantly kills any enemy it hits we can offset that power by assigning a delay and low rate of fire, turning the tower into a timed combat zone. For general purposes we shall set this delay & rate of fire to 5 seconds. Now when an enemy enters the zone they have 5 seconds to do what they please and if they are still within the radius after time is up, they die.

What's the result of this? Now we have a tower which gives all the skill expression to the player by making it play no part in the combat, but, with all the exhilarating aspects LoL's tower design provides by forcing everything into a set time frame. As all targets in the radius are hit and guaranteed to be killed, this also makes designing specialised champions more challenging and causes most designs to be less effective as they are all constrained to the same time frame.

Thus levelling the playing field.

5 seconds independent timer, 2 minute cooldown

Healing zone on enemy enter

Multiple targeting

Map: Section 3 | Sub-section 4 | Mid game

Now that we have an understanding of towers, their issues, their strengths and how LoL has implemented them. How do they affect mid game? Well, not much. In the mid game (Outer towers mostly or entirely destroyed) the percentage of the game spent laning shifts to roaming and team fights, thus towers get less time to shine. This is a good thing. Towers taking a backseat during the mid game and only occasionally having a role in a team-fight, gank and/or chase provides a different micro-macro paradigm.

Map: Section 3 | Sub-section 5 | Late game

Late game is where things get intense and is where most of the pivotal moments occur. Unlike early and mid game, not much is restricted (abilities, map objectives, items) due to most aspects already being unlocked/purchased/deprecated. Due to this, late game can rapidly switch between being one of the most streamlined yet also least streamlined sections of the game, creating a chaotic and highly intense environment to produce the best moments.

Team fights are frequent, powerful items make up most of a players inventory, map objectives are a major priority, etc. The purpose of early game was to prepare for this stage completing the core gameplay loop of a MOBA.

Map: Section 4 | Bases

Both bases contain several areas of importance, primarily the main objective and spawn. The Nexus (League's name for the main objective) is a structure which once destroyed signifies the loss of the appropriate team.

The Nexus's simplicity enhance the thrill of the end-game, nothing extra, just team fights and down to the wire moments. Other MOBA's have incorporated different mechanics into their Nexus equivalents, mostly with a great deal of success. This aspect is an open book with many valid designs.

The spawn area of each base is a large platform which can be entered by the enemy team, however each enemy will be met with a high damaging attack from the spawn which quickly kills even the tackiest of players. This slight leeway with being able to enter an enemies spawn allows for spawn camping through skill and/or careful team coordination. Attempting to stay alive and deal as much damage as possible in a short window of time is an inherently thrilling experience with the appropriate reward.

In the case of League, the spawn is also the ONLY place to purchase items (With the single exception of the champion Ornn).

We can sum a lot of DOTA up through a concept in games design call ‘weight’. Weight refers to the amount of impact each input carries or for example items, while a highly generalised terms weight tends to apply to a games fundamentals and is key in defining moment to moment experience. Let’s take a couple of random examples both in the context of DOTA and other games/genres:

- Adding a delay through turn rates makes each movement input require more decision making, thus increasing weight
- More expensive and/or potent items have more weight
- Having to click more to do a single input is more weight
- etc.

This simple concept will become useful later, in short, DOTA’s weight > LoL. Let’s see how League diverted...

Section 2: Diversion

Tried and true is best kept to

Now that we have discussed what a MOBA even is and its roots, how does League handle things? What did it change from its parent?

Diversion: Section 1 | Input & Game feel

League is void of turn rates, click -> move, simple. This makes input snappier and removes the previously mentioned extra thought process, or weight, behind each move. While a minor adjustment from its predecessor this slight change is arguably the most core reason behind League’s accessibility, appeal and initial success. Turn rates objectively improve the mental aspect of input but do hinder the ‘feel’ of the game in many players eyes, hence why DOTA has increased these turn rates to get that snappier feel.

To this day this remains one of the core reasons why many League players cannot switch to DOTA as they will experience “lag” or “clunky gameplay” front and centre. On the surface level it can easily be considered ‘clunky’, however the “lag” is a simple misinformed grasp/lack of understanding of the core input principles.

Diversion: Section 2 | Jungle

The largest diversion in terms of both micro and macro is how the jungle is handled. Like its parent there are four jungles, two on each side split into two further sub sections for each quadrant. However that is where the similarities end.

Due to LoL’s predefined roles, jungle gets a few extra things, chief among which is the smite summoner ability. Smite is not locked behind the jungle role but serves no purpose outside and for all intensive purposes, cannot be omitted by a jungler.

Are jungle, take smite.

This produces a natural balance due to jungles having map control, granting them full access to two summoner spells would be problematic. The next aspect separating the role is the addition of jungle items (pre Season 13). Jungle items, much like support items, are unique in mechanics and specific to the given role.

Jungle items assist with clearing camps by providing life steal against minions, this in combination with smite and a champion intended on jungling provides the ability to clear jungle while remaining healthy enough to roam and gank.

CONTINUE

As for the jungle itself, there are astronomical changes done from DOTA to streamline the entire process. Complex layouts with a large series of divergence and the inclusion of a Y axis enhances DOTA's jungle to be a playground of possibilities which produces consistently engaging encounters with a high level of variance. However, DOTA's jungle complexity goes hand in hand with the remainder of the game's complexity.

Thus, League streamlining the map by removing the Y axis from the equation AND drastically reducing the amount of camps, map level variance and interactables benefits the game in a number of ways:

- Onboarding players is far easier, faster and fun
- Lowers skill floor, making it more accessible to not only those who play jungle, but to every member of the team for the course of ALL playtime
- Retains a high skill ceiling relative to itself
 - **Significantly** lower skill ceiling than DOTA
- Skill curve is just enough to be engaging throughout without hitting a wall
 - One of the best qualities of League

Diversion: Section 3 | Vision

As previously stated DOTA is 3D and League is pseudo 3D, this means that visually the game is 3D but is calculated on a 2D plane, the Y axis is never taken into account. The thought process regarding height and vision is no longer an aspect of the mechanic

In League towers are extremely punishing and can easily kill most players in most circumstances, forcing the enemy out of its range. This turns towers into a barrier not an obstacle to play around. That being said, dealing extreme amounts of damage does have its perks.

Diversion: Section 4 | Sub-section 1 | Tower interactions

Diving a tower in League is an exhilarating experience due to the risk involved. The first player targeting is going to have to prepare to take a LOT of damage in a short period of time from the tower alone, combined with the players under the towers defending themselves, things can get intense.

Section 3: A game of CC vs a game of fun

Restraint yields results

If you were to boil both games down to a single sentence you end up with:
“A game of CC (Crowd Control)” and “A game of fun”

In reality both games boil down to fun, that's what any game is, but in their respective regards and design, the former focused on crowd control being the core aspect and the latter pure fun with no real focus.

Crowd control is the act of rehabilitating and disabling the opposition's actions through a number of ways:

- Slow | Reduce movement speed
- Stun | Prevent everything
 - Mini-stun | Special type of stun which is identical in functionality but only for a brief moment
- Root | Prevent movement entirely
- Silence | Prevent the casting of spells and active items
- Debuff | Reduce stats

Let's dive into each one, how it can be designed, applied and how it alters gameplay.

Section 3 | Section 1 | Sub-section 1 | Slow

Slow is the most self explanatory. Reduce movement speed. Typically applied as a % value, slows assist in the following ways:

- Make it difficult for enemy to run away
- Make it difficult for enemy to run in and get in range
- Make enemy easier to track
- Make enemy easier to hit

Section 3 | Section 1 | Sub-section 2 | Stun

Stunning an enemy prevents them from doing anything and is the most powerful form of CC and thus the most difficult to work with from a design and balance perspective. Stuns turn enemies into nothing more than targets. Stuns are difficult to get right for a number of obvious and not so obvious reasons.

Firstly, length. Totally disabling a player leaves little room for error when it comes to determining the length of the stun and its association with how the cooldown which caused it works. As a simple example let us create a stun skill, this skill works as follows:

- Point and click on enemy, stun instantly for X amount of time (in seconds)
- Y cooldown (in seconds)
- Radius of Z (in metres)

Let us set X to 1, Y to 2 and Z to 10. We shall also define a variable called M which shall dictate movement speed in metres per second and be applied to all of the heroes moving forward in this scenario equally. M shall be set to 5.

In a worst case scenario we have an infinite stun. As long as the player initiating the stun moves to remain in radius the following happens:

- 1) Stun enemy for 1 second
- 2) Move closer in 1 second time frame
- 3) Enemy moves at same rate as you for 1 second, gaining no distance
- 4) Stun comes off cooldown
- 5) Repeat

Eventually the player and enemy would be within point blank and range and repeat forever.

If we increase the cooldown, Y, to 3 seconds we still end up with the same result as both heroes move at the same rate and given the ability radius, cannot be outrun.

Section 3 | Section 1 | Sub-section 3 | Root

Rooting prevents player movement entirely, also typically disabling most movement skills, but, allows the player to do all other actions. Root is best considered a sub version of a stun, as discussed movement is integral to core gameplay, thus preventing this is an incredibly potent action.

Section 3 | Section 1 | Sub-section 4 | Silence

In League's case silence is a rare debuff which does the inverse of a root, preventing the use of abilities entirely. In DOTA's case silence is a common debuff further solidifying the principle of 'CC first'. Silence has a natural side effect of being the least obvious debuff, as both stun and root stop a player dead in their tracks, the immediate response the player receives is clear and instant.

Section 3 | Section 2 | Roles & structure

Let's take a step back to DOTA for a moment, how is a team structured? DOTA follows a 2-1-2 system, meaning two players safe/off lane, one player mid and two players off/safe lane. An important note here is that safe lane refers to the lane closest to the main jungle and off the opposite, if we look at the map we see how this is structured:

ADD LANE DIAGRAM

League on the other hand follows a 1-1-1-2 structure, meaning one player top, one player jungle, one player mid and two players bot. Leagues map supports this like so:

ADD LANE DIAGRAM (LoL)

On the surface these seem like nothing more than different takes on the same principal, however, as we shall soon learn **League of Legends's approach leads to game-wide issues which have subtly yet explicitly caused major issues to present day**. Before we can understand the issue LoL faces let's see what DOTA's structure generally implies:

- Symmetrical structure on an asymmetrical map
- Balanced structure
- Equal priority for mid lane roaming
- Open jungle
- More open champion roles due to symmetry

These all sound great, so let's do the same for League:

- Asymmetrical structure on a symmetrical map
- Imbalanced structure
- Mid lane roaming and jungle roaming issues
 - *Expanded upon later*
- Jungler takes priority of jungle
- Explicit 'intended' champion designs

In short this disparity greatly affects hero/champion designs. The problem with LoL's approach is that designing a champion for a specific role/s breaks the moment said champion is played outside of the role they were designed for. DOTA does not encounter this issue due to its more refined yet open nature, while almost every hero performs worse outside of their specified roles, they still retain more viability than LoL. To further this, hero designs in DOTA are more viable across a wider variety of play styles and thus roles making certain designs capable of being highly effective in multiple roles.

Top laner, mid laners, junglers, something every League player is familiar with yet something which most League players don't realise is a fundamental issue. Let's say you play a top laner, this champion is designed explicitly for said lane so what happens when you play this champion Mid. How about Jungle? Without even diving into the intricacies we can get a clear picture of the problem and realise that the constrained role philosophy Riot has adopted quickly breaks down.

The one role which suffers from this problem the least is support, this is due to the fact that they deal the least amount of damage and if a player wants to progress in any meaningful way, damage must be dealt.

Section 4: Runes, Keystones and Summoner Spells

A major departure LoL has taken is pre-game loadouts and universally available skills. In the early days pre-game loadouts consisted of a RPG styled progression system providing players with minor stat adjustment options to build a loadout. As you may have guessed, this was an awful system and bloated things substantially in an uninteresting, imbalanced and worst of all gated way.



In this system the player could choose between a set of glyphs, seals and marks each of which provided a minor numerical boost to the specified stat. For example:

- +1.6 Magic Resistance
- +2.5% Attack Speed
- +50 Health

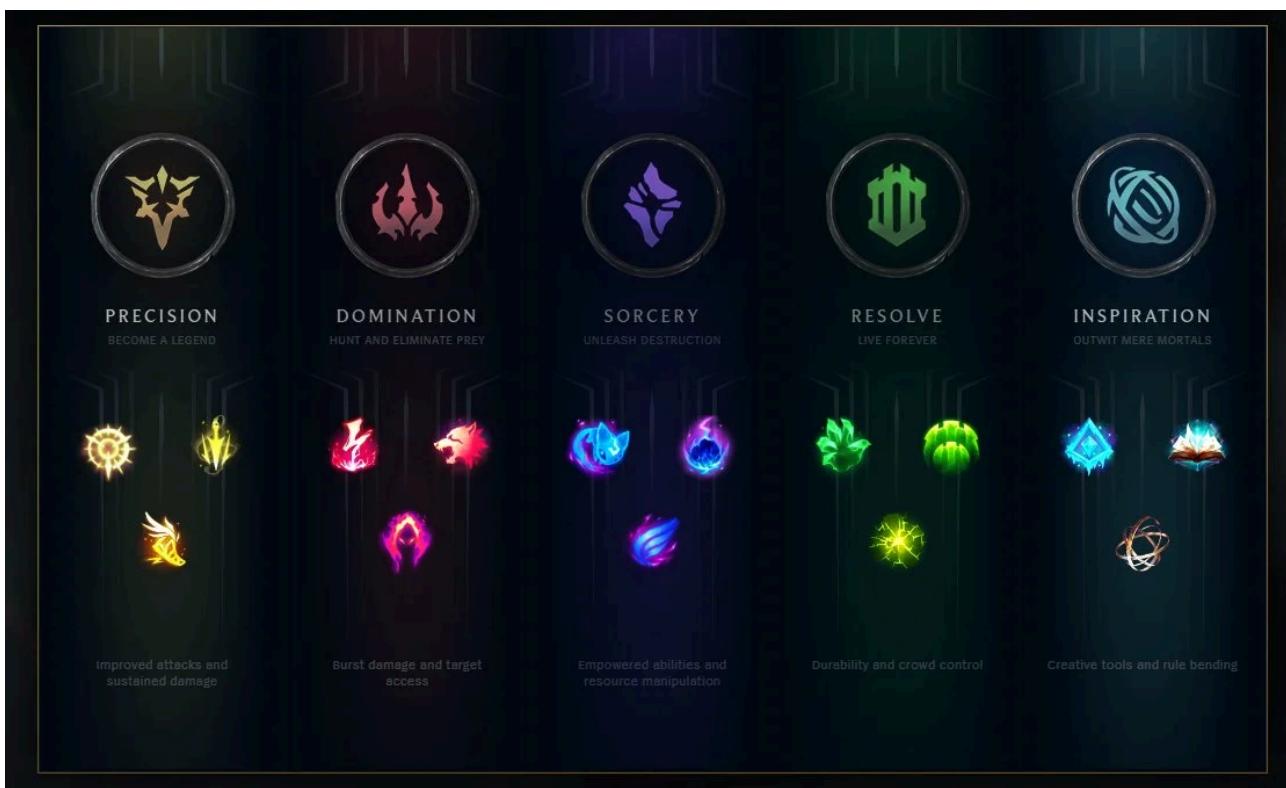
Why was this bad:

- Insignificant gains per node built up to a noticeable difference
- Said difference imbalances base stats
- Non apparent change, nothing defining what nodes a player took
- Balance nightmare, minor values with no mechanics add up to significant challenges

While this system was not too egregious during the early days of League (due to a smaller roster, item pool and overall mechanics) it quickly became problematic as time went on. To top this off nodes was gated behind a level & pay wall, requiring substantial time investment to get on an equal playing field to others which may have already unlocked all of them. This is where season 8 came in to rework this system in its entirety to greatly increase LoL's uniqueness.

Section 4 | Sub-section 1 | Season 8 (Runes Reforged)

Runes reforged was the core change for season 8, doing away with the previously discussed system and replacing it with a more curated yet interesting tool.



Note: Release keystones displayed, changed since

The core difference between the two systems is actually the curation/limitation placed on the player. As the old system allowed the player to chose ANY node they pleased, the room for imbalance was significant and was only mitigated through useful nodes (Nodes which benefit the selected champion, e.g. +Magic damage won't help a pure Attack Damage champion).

Runes reforged places this limitation explicitly:

- Players are given a choice between one core page and one sub page
- Core page = **keystone** + sub nodes
- Sub page = sub nodes

So, let's dive into this system and address what it solved and the major problems it caused.

Keystones are incredibly powerful nodes which make a large impact to gameplay quickly becoming a foundational pillar of modern League. Keystones are best thought of as a mini-ability which activates when certain criteria are met, let's look at a few examples:

- Electrocute: After 3 consecutive hits upon an enemy champion, call down a lighting bolt dealing significant damage
- Comet: Throw a comet towards an enemy after successfully landing an ability
- Grasp of the Undying: When in consistent combat with an enemy and fully charged, your next hit will permanently increase your health

This is a major improvement over the previous nodes such as: $x\%$ increased damage or $+x$ to y stat. Note that the new runes system also categories things into 5 sections and this is where the constraint is applied.

Players are given the option of two rune pages, one core and one sub, as state previously the core page gives you the option of your keystone and the sub page only allows you to chose sub nodes. These sections are defined into general archetypes:

- Precision: Improved attacks and sustained damage
- Domination: Burst damage and target access
- Sorcery: Empowered abilities and resource manipulation
- Resolve: Durability and crowd control
- Inspiration: Creative tools and rule bending

At first glance these also fall into set champion archetypes:

- Precision: ADC and Fighters
- Domination: Assassin, burst mages and fighters
- Sorcery: Mages and Supports
- Resolve: Tanks and Supports
- Inspiration: General purpose

Inherently this solves a major problem which can be illustrated like so:

ADD DIAGRAM DEPICTING CHOICE ISSUE

So what else does this system bring to the table, sub nodes take the place of the generic nodes and improve upon them by replacing the minor 'stat sticks' with interesting meaningful effects. On top of the 'once choice' system runes reforaged adopted, the ability to balance is improved by orders of magnitude.

As of runes reforaged the player is given a choice between a set of sub nodes per row:

ADD DIAGRAM, ANNOATED

Each node consists of a unique mechanic which benefits some aspect of gameplay in relation to its archetype, e.g. ADD EXAMPLES

As is the case with most mechanics constrained choice births more variety due to the fact that players are pushed to be creative, fine-tune and simply make valuable decisions. Another benefit of this system is diversity across champions. Not only does each player get more interesting choices, they also get more choice due to each node being more impactful, this contradicts the constraint discussed previously but is the proof in the system.

A constrained system with freedom is a constraint done right

Section 5: Champion/Hero design

At the core of the fun and at the roots of the problems

We briefly discussed what a hero's fundamentals are earlier and have been using certain ones in a vacuum, so let's fully dissect what a hero even is and what makes a competent design.

Champion/Hero Design: Section 1 | Basics

A heroes gameplay is defined by the following characteristics:

- Health
- Resource
- DOTA:
 - Mana
- League:
 - Mana + Alternate resources
- Abilities
- DOTA:
 - Alternate amounts
 - Standard:
 - 4
 - Up to:
 - 14
- League:
 - Alternate fundamentals
 - Example:
 - Alphelios, Udyr

Champion base stats

Champion	Health	Mana	Health Regen	Magic Resistance	Armor
Ashe (ADC)	640->2357	280->824	4->13	30->52	26->104
Aatrox (Fighter)	650->2588	N/A	3-20	32->67	38->114
Dr. Mundo (Tank)	613->2364	N/A	7->16	29->68	32->94
Elise (Jungle)	650->2503	324->1174	6->16	30->52	30->118
Draven (ADC)	675->2433	361->1024	4->16	30->52	29->106

- Core stats
- Sub stats

Defensive stats of five randomly selected champions (decimal place omitted and rounded) from level 1 to level 18

Here are five champions with their respective defensive base stats (as of January 2023) along with their associated roles. These charts don't tell us much without an understanding of each champion's kit, however we can infer some things:

- Ashe has less movement speed because she is ranged
- Aatrox has high MR (Magic resist) and Armour to fulfil his aggressive play style
- Dr. Mundo despite having the lowest health, is a tank, implying that his kit makes up for the lack of base stats

The roles of each champion not only defines their kits but also their items, notice that Draven has some of the highest stats and yet is a hyper attack damage first champion. Draven does not purchase tank related items as there is little benefit, instead damage and utility are prioritised, thus these base stats only paint part of the picture.

Let's look at the offensive stats to reveal more of each champion:

ADD OFFENSIVE CHART

Section 1 | Sub-section 1 | Health

Health is the most basic aspect of a champions design as it defines their overall state of wellbeing. Once it reaches zero (in the majority of cases) we kill the player. However the rabbit hole which health creates is a wide and deep one which can cause a significant number of balancing issues and its prominence in a champions strength along with the rest of the game can be extremely difficult to get right.

To expand on this, let's dive into how health even works and how it can be altered.

We are going to create a generic health bar and play around with a series of values and parameters to see how it gets affected and what kind of issues may arise.

ADD DIAGRAM

Damage shall be applied as 'true' for now, meaning no stats are taken into account and the raw values are subtracted. For example. Lets deal 10 true damage 20 different times, subtracting a total of 150hp and dealing a total of 200.

ADD DIAGRAM

Wait, 150? Why are there two values and why is one less than the damage dealt? That's not correct math, it should have been 200.

It would have, but, that's far too basic and doesn't tell us much about of health actually works in a MOBA scenario, so let's see why 150 was dealt in this hidden example. Firstly, why apply it 20 different times instead of just applying 200 flat? This allows us to demonstrate a couple of aspects, most notably health regeneration.

It was never specified the rate at which these hits were applied nor that there was health regen in play, something all MOBA's do and subsequently all champions in LoL and DOTA do. In this example we have a health regen of 1hp/s and our hits were applied as follows:

- 10 hits were applied instantly, dealing a flat 100 damage, preventing regeneration from impacting the total
- 50 seconds were then passed, allowing 50hp to regenerate
- The remaining 10 hits were applied instantly, dealing a flat 100 damage

Thus 200 damage was dealt in total, however, 50 hp was regenerated leaving our total health lost at 150. This basic example already makes damage an interesting and extremely dynamic aspect when taking into account the rest of the game.

To expand upon this depth the damage dealt shall be changed from 'true' to 'physical', however the values shall remain the same. So, 10 'physical' damage dealt on 20 separate occasions.

Section 1 | Sub-section 2 | Resource

In DOTA, mana is always the resource. In League, mana tends to be the resource but there are several instances of swapping it out for something else which leads to several issues.

Why is not using only mana a problem? As is the theme throughout this analysis, even playing fields and universal fundamentals birth an easier landscape to balance. Something which should especially be adopted in a competitive game.

Before we can discuss why not having a universal resource is so problematic let's see why having one, while simple, is perfect.

Mana being a universal resource means the following:

- Single unit to take into consideration
- Itemisation is standardised
- Easy to grasp, read at a glance and calculate

- Can be visually and audibly represented (Mana potions, skills, etc.)

And several more minor aspects. In short, mana being the only resource allows the entire game to be built around it but more importantly evolve with it. A rock solid foundation with an ever evolving structure above it is far easier to manage and typically results in a better product overall.

To further validate this, let's add a new hero into DOTA which doesn't use mana but some arbitrary resource instead:

- Itemisation is no longer standardised, mana related effects become meaningless when said hero is played. One less data point to work with, 120 heroes of mana, 1 without
- Units are no longer standardised
- Difficult to compare against other heroes, especially during gameplay
- May be difficult to visually represent
- Certain items are invalidated (Example: mana potions) thus having an effect on the economy and general gameplay flow

Azir, the Emperor of the Sands



'Complexity thrives if a diamond cut design can be made'

First on the chopping block is Azir, one of the most mechanically engaged heroes in the game and arguably the hardest. Before moving forward let us define what mechanical engagement means.

There are champions whom require little engagement both mentally and physically (Low APM), these champions are the easiest and are pushed as starting champions for new players. Some examples of these are:

- Lux
- Ashe
- Miss Fortune
- Garen
- Darius
- Veigar

There is a defined disconnect between mechanical complexity and input complexity which isn't clear at the surface level. Let's define these terms before analysing Azir.

Mechanics refer to the inner workings of abilities, a champion as a whole and how these may interact with other elements of the game. For example, we can create a hypothetical simple ability -> 'Throw Axe'. This ability throws an axe along a given vector and deals damage on impact, mechanically simple, with a simple input. We can expand this while retaining the core of the ability by adding the following -> 'On re-cast, return the axe to the player'. This simple addition vastly expands the ability, raising the skill floor & ceiling, increasing input complexity, adding flavour and most importantly giving more opportunity for fun.

Let's go one step further and add some numerical additions -> 'Upon impacting a champion, inflict a bleed which lasts for 5 seconds and deals Enemy.MaxHealth/100 per second'. Now we have an ability which can inflict a potent bleed, can be controlled through the use of positioning via extra layers of input yet can still be easily understood and quickly adopted by the user. Where does Azir come into this...

Azir falls into a category of 'mechanical complexity, input complexity' meaning he provides both a high level of depth on a knowledge & skill level, requiring an excellent macro understanding of the game as well as excellent micro analysis skills in order to be played effectively. His abilities provide high APM gameplay along with complex input. Before we move further into his kit, what exactly does complex input mean? That means there is simple input, isn't all input simple? All we are doing is pressing buttons.

If you paid attention to our quickly thrown together 'Throw Axe' ability you may have noticed what this means. The interface between player and computer will never exceed that of pressing buttons, every player will only ever press keys on their keyboard and buttons on their mouse. It is how these inputs can be made as interesting as possible through software which is where this term comes from, which in the case of 'Throw Axe' is done via re-casting. Two inputs for one ability is an increase in input complexity. This goes one step further into the type of ability and how it may be implemented in world space.

Let's define a few types of abilities:

- Skillshot
- Point-and-click
- AOE
- Directional
- Placeable

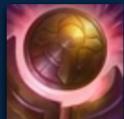
This is just the master genre of a skill which defines its most fundamental raw input. A skillshot only **implies** that it moves in a straight line, it could move in a wavy pattern, a zig-zag, it could be controllable, it could bounce, it could go backwards, etc. All of those are variations which increase the input complexity, as behind each key press a greater deal of thought is required OR extra input is needed, such as being able to control a skillshot.

To close this point:

- Input A | key 'E'
 - Fires a skillshot towards the cursor
- Input B | key 'E'
 - Fires a skillshot towards the cursor to define the first location
 - Re-cast to define second location of projectile
 - Re-cast during projectiles travel to explode and deal damage in a small area of effect

Same genre, same key, different level of complexity.

INNATE: Whenever a  turret outside the enemy team's base is destroyed, a marker is placed above its ruins which can be targeted by **Azir**.



INNATE - DISC OF THE SUN: **Azir** can select a marker to construct the **Sun Disc** above the ruins after a 0.5-second cast time. The **Sun Disc** will activate after being assembled over 5 seconds.

The **Sun Disc** functions the same as a standard inner turret, gains 15% AP  bonus attack damage, and grants its kill credit to **Azir**. The **Sun Disc**'s  health decays over 60 seconds and loses  100 armor while **Azir** is not alive or is too far away.

Azir cannot construct a **Sun Disc** with the marker while he is unable to cast abilities.

See **Pets** for more details about the **Sun Disc**.

Now that we understand input complexity, let's see what Azir's kit has to offer, why he is one of the hardest to play and the kind of fundamentals applied to keep him relevant after so many years.

Right off the bat we have a unique passive which hints at Azir being a zone controlling powerhouse. That's right, Azir can construct towers, if you call back to the tower section and how League has implemented them it becomes apparent that this is an S tier passive.

CONTINUE PASSIVE

Now let's get into the core of Azir's entire kit by starting with his W, a mandatory skill to obtain first.

PASSIVE: Azir gains  bonus attack speed, doubled for 5 seconds if he summons a third concurrent soldier with *Arise!*

BONUS ATTACK SPEED:  15 / 25 / 35 / 45 / 55%

ACTIVE: Azir summons a **Sand Soldier** at the target location that is  untargetable, lasts 10 seconds, and grants  sight of its surroundings. The **Sand Soldier** expires twice as fast while within range of an enemy  turret, and does so instantly if **Azir** is too far away.

Azir periodically stocks a **Sand Soldier**, up to a maximum of 2.

When **Azir** declares a basic attack against an enemy in a soldier's  attack range, the **Sand Soldier** attacks in his stead, thrusting their spear in the target's direction to deal 50 – 150 (based on level) (+ 55% AP) magic damage to enemies struck in a line. Targets hit beyond the closest take 25 / 50 / 75 / 100% (based on level) damage. Subsequent **Sand Soldiers** against the same target deal 25% damage.

Sand Soldiers cannot attack  structures,  wards, nor  traps.

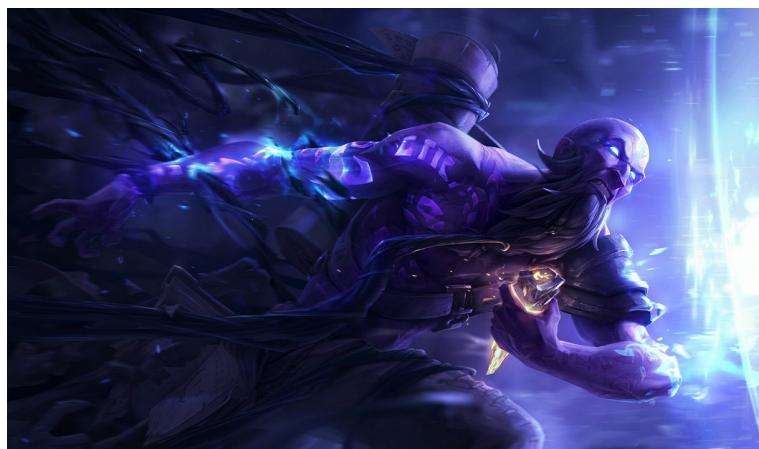
Arise! will cast at max range if cast beyond that. See Pets for more details about Sand Soldiers.

We shall start simple, Azir gains a flat attack speed buff at each level, implying a lower damage champion who is ability heavy. The second half of this attack speed buff is intriguing, third concurrent solider?

The W's primary function is to summon a Sand Soldier, an untargetable unit with its own range and set lifetime of 10 seconds. Soldiers are best thought of as attack range extenders

DO THIS ABILITY

Ryze, the Rune Mage



With Azir we had a champion whose kits is saturated with a core mechanic as well a high input ceiling. So what if we take a champion and make their input their entire kit. Welcome Ryze to the stage.

Ryze is a combo based champion, meaning his skills have a high amount of direct synergy between them, thus producing a high input ceiling. Ryze's kit is best compared to a fighting game, explicit, consistent and rapid input to produce a series of different combos to suite the current scenario.

Of all the champions in League Ryze has also received the most amount of reworks having a total of 7 different versions. We shall discuss this later.

As stated previously LoL's gameplay was made to be direct, fast-paced and with the highest amount of micro engagement possible, this means that champions with more consistent input tend to feel better. Ryze stands a top of this principal but in a more interesting manner.

[As a side note, DOTA also benefits from heroes with more consistent input, however designs in DOTA tend to have a lot more macro depth to them and thus most inputs carry more weight to them, lessening the impact consistent input may have]

As a fighting game is the best comparison to make to Ryze's gameplay let's look at what a fighting game does to be engaging. Fighting games are all about input, much more than any other genre, even rhythm games. The reason for this is due to the distinction between **deliberate** and **reactive input**.

Deliberate input is input done explicitly and with thought in the context of thinking ahead, for example entering a password is deliberate input. You know your password -> you know you are going to be entering your password -> you enter your password.

Reactive input is similar but is done based on the output of something else, for example, POP UP HAS APPEARED CLOSE IT NOW IN 5 SECONDS ELSE SOMETHING BAD WILL HAPPEN! You can't predict this event and have to use 'deliberate' input to 'react' to it. Fighting games strike the perfect balance of this:

- **Deliberate input:** Combos, special moves, movement techniques, etc.
- **Reactive input:** Combo breakers, blocking techniques, counter attacks, etc.
- **Mix:** React with combo, react with special move, react with movement technique, etc.

Ryze achieves this mix more than most as well as doing so in a way which does not interrupt 'flow' but rather plays to it. Do demonstrate this lets jump into his kit.



Passive | Arcane Mastery | Simplicity thrives

Meet the simplest passive in the game for one of the more complex champions. Due to Ryze being a combo heavy champion his mana usage is naturally higher then most, even if said abilities had a low mana cost. Thus, Ryze is granted hyper mana scaling to compensate. Scaling by AP (Ability power) means that building damage increases his max mana, due to this Ryze's itemisation is kept straight forward.

Q | Overload | Skillshot

Skill shots are an entire genre of skill and thus can go down countless avenues from basic to complex to quirky to even teamwork focused. Overload is a simple skillshot with perfectly integrated elements to fit Ryze's kit.

W | Rune Prison |

E | Spell Flux | The connector

Foundational to Ryze's kit and the cornerstone of moment to moment gameplay, Spell Flux chains everything together and gives Ryze his fighting game characteristics.

R | Realm Warp | Game changing utility

Teamwork, pro-play and high ranked gameplay require abilities or entire kits (supports mostly) to be designed to allow it to blossom. There are few abilities in LoL which achieve true teamwork, that is an ability where communication is key. Many support abilities don't actually require good communication instead they simply inherently benefit the team even when used poorly. Ryze is one of the few champions to not only have a true teamwork ability but arguably the highest teamwork synergy ability in the entire game.

An ability which has been the catalyst for some of the greatest moments in LoL's Esports history.

Realm Warp is an AOE based teleport which can transfer Ryze himself as well as teammates.

Pyke, the Bloodharbor Ripper



'Good design, almost great in execution, rocky on balance'

Assassin support, sounds like a problem but before we can say that we have to actually define what an assassin is. On the surface level it implies the ability to kill quickly and/or stealthy, which Pyke fits, but there is more to it than that. As discussed in the classes section earlier, assassins are intended to fit a list of criteria regarding roaming potential and methods of dealing significant portions of damage in a short period of time.

And if Pyke fits this description how can an assassin support work? They contradict each other do they not?

No, in fact, Pyke sits high on the 'good design' tier list. This is due to the fact that while Pyke's design DOES fit the fundamentals of an assassin, it fits in an abnormal way. To demonstrate this, let's reduce him down step by step and see how long it takes before he loses his assassin support status.

Before we can discuss what to remove, let's get a brief overview of his kit.

INNATE: Pyke's + maximum health cannot increase except through growth (per level), instead he gains **+1 bonus attack damage per 14 bonus health.**

INNATE: Pyke gains **1 bonus movement speed** while in the river.



INNATE: Pyke stores **9% (+ 0.2% per 1 Lethality)** of the post-mitigation damage he takes from enemy **champions** as grey health on his health bar, increased to **40% (+ 0.4% per 1 Lethality)** while there are two or more **visible enemy champions** nearby. He can store up to **80 (+ 800% bonus AD)** grey health, with an upper cap of **55% of his maximum health**.

While **Pyke** is not **visible** to enemies, he rapidly consumes his **grey health** to **heal** for the same amount.

Passive | Gift of the Drowned Ones | Alternate health

Pyke has a unique health mechanic which makes up a bulk of his foundational support identity. Firstly, he is unable to gain maximum health (except through levels), something no other champion (yet added) can share. Instead he gains 1 bonus AD per 14 bonus health, note that as always these values may change. We shall discuss this bonus health further later.

The next aspect is a joke addition which doesn't really have an impact on gameplay, +1 movement speed while in the river. In real gameplay this has negligible impact.

Now onto the meat of his passive. Pyke's health is converted based on the amount of damage taken, this ratio is changed if there are more than two champions in line of sight, increasing his survivability when it matters most. This dynamic scaling is not necessarily needed and was implemented for the following reasons:

- TTK (Time to kill) is low because LoL's overall damage is high, requiring extra scaling to assist in survivability which otherwise would not be needed if LoL's damage was balanced
- Pyke is a support/assassin, his overall capabilities are inherently extremely high, so adding a higher ratio threshold when "needed" isn't actually needed to make him powerful REWORD!

Q | Bone Sk | Poke, hook

Pyke's signature ability and one of the few 'hooks' in the game, Pyke's hook is unique due to the two way nature of it. It can either be used as a high damage short range poke OR as a long range hook. This interaction is done by either tapping or holding down the input.

Ghostwater Dive **COST: 50 MANA** **COOLDOWN: 12 / 11.5 / 11 / 10.5 / 10** **CAST TIME: NONE** **Edit**

DETECTION RADIUS: 600



ACTIVE: Pyke submerges into water for 5 seconds, entering **camouflage** and gaining **+40% (+ 1.5% per 1 Lethality) bonus movement speed** that decays over the duration. Attacking or casting abilities ends **Ghostwater Dive** immediately.

*Enemy champions within 1500 units of Pyke are alerted of his presence and whether he can execute them with **Death from Below**.*

W | Ghostwater Dive | Stealth movement

The cornerstone of most assassins is their ability to gank, something Pyke excels at more than most. Ghostwater Dive is one of the most effective stealth AND mobility abilities in the game with some much needed balance implemented into the core design. Let's get an overview.

Pyke's movement speed scales with lethality (the primary stat for assassins) but has a decaying effect, this single line enforces lethality scaling for the following reasons:

- Movement and positioning is the most important aspect of the game, thus being able to move more effectively greatly increases overall effectiveness
- Pyke's kit specifically plays well with movement with both his Q and E benefiting heavily from positioning
- Ganking becomes far more effective the faster the player moves
- Survivability becomes far more effective the faster the player moves

Like most stealth abilities in the game it is ended immediately upon any form of skill cast or attack, purely restricting it to a stealth-mobility skill. To add further balance there is a large radius where he is detectable by enemy vision.

Phantom Undertow COST: 40 MANA COOLDOWN: 15 / 14 / 13 / 12 / 11 CAST TIME: NONE Edit


ACTIVE: Pyke  dashes in the target direction, leaving behind a *Phantom*.

TARGET RANGE: 550 EFFECT RADIUS:  110 WIDTH:  110 SPEED: 3000

After 1 second, the *Phantom* homes back to **Pyke** to  stun enemies around it and those it passes through along the way for 1.25 (+ 0.1 per **10 Lethality**) seconds. Enemy champions hit also take physical damage. **(+ 100% bonus AD)**

PHYSICAL DAMAGE:

105 / 145 / 185 / 225 / 265

E | Phantom Undertow | Mobility stun

An interesting take on a stun ability and one which proves to be one of the most effective abilities in the game if used correctly. Pyke's E causes him to ask to a target location after which a ghost will follow his path and stun any enemy hit. This ability works well in conjunction with not only his kit but other teammates in ways most stuns do not. The ability to reposition oneself AND have an effective stun tied to it proves to work well in both the laning phase and team fights.

Additionally the stun duration scales with lethality, stun scaling is extremely rare in both LoL and DOTA but can work well if done correctly.

To add to this enemies also take physical damage

R | Death From Below | Execution

Death from Below COST: 100 MANA COOLDOWN: 100 / 85 / 70 CAST TIME: 0.5 TARGET RANGE: 750 Edit


ACTIVE: Pyke marks the target location with an X before striking it,  executing enemy  champions within the area that are below 250 – 550 (based on level) (+ 80% bonus AD) (+ 1.5 per 1 Lethality) + health. Other enemies hit and enemy champions above the threshold are instead dealt 50% of the amount as physical damage.

EFFECT RADIUS:  125 / 282.5 × 100

If *Death from Below* hits an enemy  champion or at least one is killed inside the X by the execution or an ally, Pyke will  blink to the center of the X. For the latter case Pyke can also recast the ability within 20 seconds at no cost.

Each successful execution grants one  Your Cut to the last assisting ally, instead of its natural assist  gold. In addition, Pyke is granted a  Your Cut for each enemy champion killed inside the X by an ally during *Death from Below*'s cast time.

Firstly, let us start by removing his Q, his core support plus assassination ability. You may think that his ultimate is his leading assassin ability, but as we shall touch on later in the 'ultimate' section, ultimates should never define a kit despite being the most prominent part of it. So Pyke can no longer hook or deal or a large portion of damage, is he still an assassin support, yes. This

is because although his damage is significantly nerfed his ability to roam remains just as high as before AND his damage is still granted by his ult.

Phantom Undertow, his E and core support ability being removed must surely remove his role, right? No. Despite no longer having a dash and stun his movement and ability to roam is still not removed due to his W holding most the power. As a support he remains effective due to having excellent roaming potential, map control and micro position capabilities and as an assassin his ult + w remains excellent.

Okay, so now we have a two ability champion which has yet to lose the title. Can we strip anything else away? There is one more aspect which pushes the boundaries of what a support even is, that is deleting his W. Now all that remains is a mostly self benefiting passive and an ult dedicated to killing. There is however one single aspect remaining to define him as a support, his passive grants 1% bounds movement speed in river.

As stated, quite a stretch but a technical assassin + support addition. The reasoning for this is that the buff even exists in the first place, we never said we couldn't change values, how about 15% bonus movement speed instead. Whether it is 1% or 268%, the fact remains that Pyke gains a benefit from being in the river, a thematic and gameplay fitting trait. We know that moving faster benefits an assassin due to roaming potential, but is it that big of a deal for the support role...

Movement speed is an absolute core factor on the same level as mouse input and moving faster has significant impact on every aspect of gameplay. If a support can move faster, they can do the following:

- Get to teammates faster
- Get more map control through warding in a shorter period of time

So while numerically Pyke has now been stripped of his role given that the passive only provides 1%, the design remains in tact. But enough dissection, how does the full kit work in game and where are its shortcomings in trying to fit this unique multi role.

Hooks are a tough to get right due to their inherent power, moving the position of an enemy through space is as powerful as it gets. Yet Pyke's hook design falls slightly out of this stigma. Firstly, there are two states, essentially making this two abilities in and thus Pyke a 5 ability champion. Pressing Q provides a medium range poke which can be used for lane control, farming and most important, **assassinating** enemies.

Holding Q swaps it from an assassination ability to a support ability, ramping up a slow moving hook. The key words here and swapping and slow moving

So Pyke, good design in concept and well executed, but his ult is problematic and results in balance difficulties. Is there any way we can balance this?

Yes. Remove the ability to kill multiple people early on.

How do we go about doing this and does that alter his kit? Pyke's thematic is piracy and has some mechanics regarding gold generation. So, let's remove the ult reset on kill and trade it for a set amount of recasts in a given time period but limit the amount of recasts. Now Pyke is limited in his total throughput of power without affecting the amount of fun. In fact Pyke is now slightly more forgiving as we can compensate the reduction in total kills by making a missed hit not end the ult. However it was stated that we shall remove the power 'early on', which implies that there is some sort of scaling.

Given Pyke's money generating theme, let's have ult recasts based on the amount of gold farmed, like so:

- 1 cast = level 6
- 2 casts = 1000 gold farmed (starting from level 6)
- 3 casts = 2500 gold
- 4 casts = 5000 gold

- 5 casts = 6500 gold

Several things to note here. Firstly, this mechanic is assigned to the ability itself and thus gold tracking only applies once the skill is unlocked, this adds the minor consequence of accidentally not getting the ult at level 6. While this is unlikely a mistake of this nature would affect the rate at which casts are unlocked.

Second, gold is counted as total farmed, not current. This means spending gold in the shop does not affect the amount accumulated as well as gold not being used when ulting.

And finally, scaling is applied on a sigmoid curve of income meaning gaining the second cast is the fastest, third slightly slower, fourth much slower and than the fifth faster than the fourth. This makes gaining enough power throughout early game a noticeable but easy task and then hitting a wall mid game to allow others to fair a better chance as well as incentivising high skill gameplay and teamwork to assist in farming gold. Pyke's strength is immense and a single cast can drastically alter his power.

The final cast is faster to function as catch up for late game and to get the full player satisfaction with little effort. Team fights, jungle roaming and focused lane pushing/defending are a more common occurrence during late game so farming the remaining gold is naturally quite fast.

So what does this achieve:

- Pyke's early game dominant strength has been removed, making him more in line with other supports
- Improves early game micro and macro due to a greater focus on teamwork
 - Pyke is now weaker and cannot take as much control over the game, refining his position as a support
- Natural increase in focus due to scarcity and income + recast management.
- More interesting macro gameplay through slowly unlocking casts through gold
- Increased player satisfaction due to champion growth over long periods
 - VFX, SFX and flashy UI updates can further push this feeling
- Increased player satisfaction per ult kill due to scarcity of casts and satisfaction of gaining gold to feed ult mechanic (Micro gameplay loop)
 - Limitations are a good thing, knowing you only have X amount of casts makes each encounter more thrilling
 - Giving gold multiple uses increases its value in a unique way
 - Landing X amount of casts satisfaction remains intact
- Encourages teamwork in an ideal scenario to help strengthen Pyke's power
- Retains late game power in full
- Eases on punishment as missing an ult no longer ends it, instead, all casts must be used in a given period of time
- Retains him as an assassin but solves the common issue of assassins being one of the strongest classes throughout most the game

What issues may arise from this:

- Teamwork is more encouraged, something which rarely gets engaged in
 - Teamwork will be discussed in a later section
- Current players will initially be irritated by a drastic nerf in early game power fantasy
- Reset on kill satisfaction removed

Are those issues founded correctly?

When discussing game design issues there are two categories they tend to fall in. Fundamental, and consequential. Fundamental issues are inherently wrong even in vacuums or at least semi-vacuums. Consequential issues are birthed from solid fundamentals who later cause issues when merged into the real world of the game itself. So, are these issues valid and do they prevent this "fix" from being applied.

To answer this, let's completely gloss over teamwork for a later date and use this new system as an example.

Most notably, this is quite a severe nerf to Pyke's power in the early game, which is technically an issue for those whom play Pyke but a welcome addition to those at the mercy of him. So is it actually an issue if one group benefits and one doesn't? The answer, no, it isn't. How?

No one enjoys having their champion nerfed even when they know they should be, but value nerfs and mechanical nerfs are two separate things and should be viewed that way. Altering a mechanic and making it more interesting while balancing at the same time is only beneficial for both parties despite appearing harsh at first. Especially to those whom play said champion. However, as stated In the benefits, Pyke retains all power late game, gets a new interesting yet simple mechanic to engage in and the opposition has an easier time dealing with a naturally powerful champion.

Zeri, the Spark of Zaun



'Over designing the basics for the sake of chasing player engagement'

At the time of writing this paper Zeri is a recent addition to the game (20th January 2022), with a mid-scope update being released soon. The question lies in why a recent champion already requires a considerable update to their kit in order to function properly. This is a telling sign of LoL's modern philosophy falling apart at the seams and Riot reaping the consequences of what they constantly sew.

Let's break apart Zeri and see what went wrong.

ADD KIT

After reading that novel, we first have to address the elephant in the room. Zeri's primary form of attack is bound to an ability and not an AA (Auto-attack), on paper this is a 50/50. One the one hand this creates a unique input interaction with a satisfying response for the player (key press > mouse press), however, on the other hand this is problematic as it significantly deviates from the standard. As we shall soon see, this has its issues.

Let's get a deep look at the ability:

If this small essay wasn't already alarming enough the mechanics are sure to change that. Firstly, Zeri gains 1 charge for every 40 units travelled (by any means) and gains 10 charges when casting another ability, 'Burst Fire'. She is capped at 100 charges, these charges are used to deal 'modified' damage. Maximum charges are provided at the start of the game and upon respawning.

Phew, we can breathe little. This is actually an excellent passive which ties the concept and the gameplay together tightly. Bounding movement to an increase in damage via charges in a unique way, but there are a few issues with this. Most notably balance. Movement speed is a true

INNATE: Zeri generates 1 charge for every 40 units she travels by any means and 10 charge every time she casts  *Burst Fire*, up to a maximum of 100 charge. Her basic attacks consume charge to deal **modified damage**.

Zeri gains maximum charge when the game starts and upon respawning.



BASIC ATTACK: Zeri zaps the target, applying spell effects as  spell damage, and triggering on-cast effects. This cannot  critically strike nor trigger  on-hit and  on-attack effects.



While not at full charge, Zeri's attacks deal 10 – 25 (based on level) (+ 3% AP) magic damage, and  execute targets below 60 – 150 (based on level) (+ 18% AP) health. Each attack consumes 10 charge if she has enough already.



At full charge, Zeri's next attack is empowered to consume all charge to deal 90 – 200 (based on level) (+ 110% AP) (+ 1% – 15% (based on level)) of target's **maximum** health magic damage. The damage based on the target's health ratio is capped at 300 against  monsters.

fundamental value and is affected through a multitude of elements; items, abilities, teammate abilities, enemy abilities, environment, etc. This makes the numeric analysis of this ability pretty much impossible, such as 'average charges per minute'. The variability is far far too great to get a good understanding of its impact and thus cannot be truly balanced.

However, this inherent impossible balance can be offset by making the remainder of the ability counteract this wild variability. Let's see what the rest of this has to offer.

Spell damage is an unusual inclusion for an ADC but does provide a twist to the norm and is counter balanced by preventing standard on-hit and on-attack effects. We can give this part a pass.

Now we step into the deep end.

The first glaring issue is that Zeri is AP based. She is an **ADC**, why is AP damage being dealt. The first counter argument to this being a valid addition is that other champions deal damage they may not be initially expected to and/or that there are plenty of hybrid damage champions. This is correct and does lessen the blow of this addition, however, this is one long road heading in the wrong direction.

The fact that a counter argument of "Well, others do it" isn't a valid defence because of the inherent issues that exact statement causes. While ADC is an externally defined term (Marksman is the official term) meaning that dealing exclusively AD is not explicitly defined, the problem of multiple damage types per role quickly spirals out of control. An issue which will become apparent later.

To not fall too far off track, lets get back to the remainder of the ability and address the multi-damage issue later.

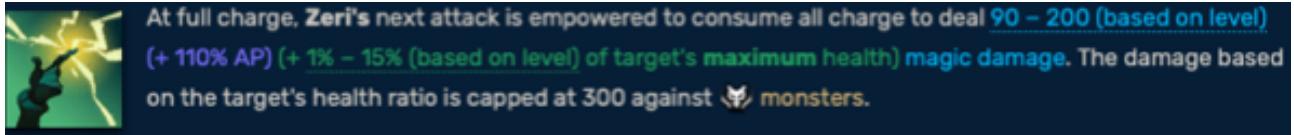


While not at full charge, Zeri's attacks deal 10 – 25 (based on level) (+ 3% AP) magic damage, and  execute targets below 60 – 150 (based on level) (+ 18% AP) health. Each attack consumes 10 charge if she has enough already.

Moving on we see an alarming addition, built in execution once again driven by AP. Why are built in executions problematic and to extend that statement, are executions in general a problem? No, not inherently. Executions can be an interesting implementation but as the name states is a potent ability and is best reserved for:

- Kits which revolve around the concept
 - Ideally ultimates
- Objective rewards
 - Elder drake
- Expensive items

In short, executions are best reserved as an uncommon addition tightly integrated into powerful aspects. So, Zeri having a built in execution tightly incorporated in the most core **auto-attack** ability is a nightmare waiting to happen. This problem is further enhanced by scaling with AP, again this problem will become more apparent as we further dissect Zeri's kit.

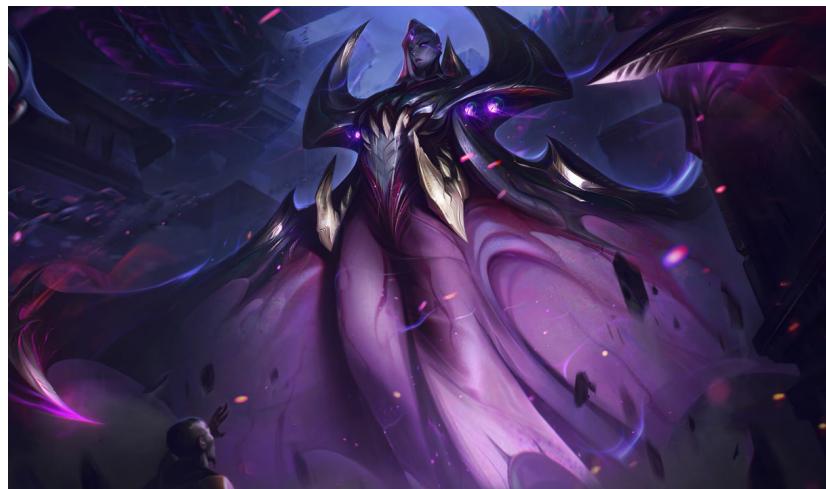


The final aspect ties together the charge system by providing a big bonus at max charges. The concept is

Zeri's mobility, as with most modern champions, is a problematic addition for the following reasons:

- Ranged champions + mobility = more range
 - This creates an unnatural balance in favour of ranged champions
- Terrain defined
 - Varying effectiveness, leaning towards overpowered
 - More often to encounter large terrain jumps
- CONTINUE

Bel'Veth, the Empress of the Void



Bloat, bloat, more bloat and with a hint of extra bloat

Another recent addition and another example of philosophical shortcomings is Bel'Veth. Overturned for the sake of attempting to increase interest, engagement and or the illusion of design. Before moving on, lets define the principal of 'design illusions'.

Adding extra content to a foundation **DOES NOT** inherently improve the design, this applies to art also. The term 'over designed' often gets thrown around a lot in the creative world (*technical world also*) and for good reason, as designers can get carried away with whatever they currently have with the intent of improving it, only to repeat said cycle.

Work with base -> add -> new base -> work with base -> add -> repeat...

This vicious cycle leads itself to the creation of a champion whose core idea is drowning in over designed simple abilities for what can only be described as either:

- Laziness
- “Because we can”
- Pads out a poor foundation

And that leads us to diving into Bel’Veth’s kit:

INNATE: Bel'Veth attacks 36% faster than the median champion and her attack speed cap is modified to 90, but all sources of damage (including on-hit effects) dealt by her basic attacks are reduced to 75%. Her **attack speed** does not increase through growth (per level).

INNATE: Bel'Veth's ability casts each generate 2 stacks of *Death in Lavender*, lasting for 5 seconds, refreshing on basic attacks and subsequent casts, and stacking up to 6 times. While **Bel'Veth** has stacks, she becomes ghosted and gains 25% – 50% (based on level) **bonus attack speed**. Her basic attacks each consume 1 stack.

 **INNATE:** Whenever **Bel'Veth** scores a takedown against a champion, monster, or minion within 3 seconds of damaging them, she generates a permanent stack of *Lavender*. Minions and monsters that are large generate 1 stack, champions and epic monsters generate 2 stacks.

LAVENDER: For each stack, **Bel'Veth** gains 0.28% – 1% (based on level) **bonus attack speed**.

The first of countless red flags is the shear size of the passive. A common ‘meme’ within the community is modern champions having extraordinarily bloated abilities and subsequently ability descriptions, where as older champions had their ability descriptions as long as a sentence or two. It is a valid statement and is hard evidence of the modern philosophy bloating champions in an attempt to make them more interesting. REFER TO ABILITY DESC BEING LONG NOT BAD SOMEWHERE ELSE

Let’s isolate the first section:

A base increased attack speed is not problematic on paper and defines the champion as an auto attack heavy damage dealer while also setting up the rest of her kit to possibly revolve around this. On top of this, the correct principals of fundamental balance has been applied to a partial extent. Bel’Veth is incapable at passively gaining attack speed through levels, which at first glance sounds like a good offset to the inherent advantage. In fact, depending on the remainder of the kit, setting a base attack speed higher than average and then never allowing any scaling is a valid implementation:

- Shortens passive, simplifies kit
- Early game -> mid game power advantage, primarily through on-hit effects

The second aspect of balance is reducing the effect of all damage including on-hit effects to a flat 75%. Great, less damage, more attack speed, a valid trade to diversify a design. This however is where the inherent balance ends and the trouble begins.

The second aspect of her passive is stack generation on ability casts. Said stacks only last for 5 seconds but are refreshed on any basic attack or cast of an ability, naturally making it easy to retain stacks once initially created. Having stacks grants ghost (faster movement speed) and increases attack speed and considerable amount. Competent design:

- Move faster to take advantage of increased attack speed

- Lose stacks per attack
- Result: Easier to hit burst damage

So if the design is valid then where are the problems? Simple, values. 25-50% scaling makes the end-game power potential significant but with no effort behind it, out scale for no skill. This leads to Bel'Veth being able to go toe-to-toe with a great majority of champions the majority of the time simply because she can.

Before moving forward, we have to ask an important question. Is this a bad thing?

In a vacuum this is a grey area as every answer cancels every other answer out. For example:

- Late game scaling further defines champion
- Being able to fight everyone is fun
- Textbook definition of a brawler
- Great for jungling capability
 - Junglers whom can fight post main jungle phase are more viable and engaging
- More diverse
 - Completely viable top, mid, jungle

These are all valid in their own right but all get made invalid when the concept of skill and/or balance gets added to the mix. **Bel'veth's power is granted, not earned.** She does more because she does more, there is no mystery here, Riot simply added a bunch to her kit and that results in her having more than most champions. Her first ability, , continues this trend.

Edit

Void Surge


COOLDOWN: 1 CAST TIME: NONE RANGE: 400
COLLISION RADIUS: 100
SPEED: 800 / 850 / 900 / 950 / 1000 + 100% MOVEMENT SPEED
PER-DIRECTION COOLDOWN: 16 / 15 / 14 / 13 / 12


ACTIVE: Bel'Veth  dashes in the designated direction, though not through terrain, dealing physical damage to enemies she passes through and applying  on-hit effects at 75% effectiveness to the first target hit. *Void Surge* can  critically strike for (75% +  35%) bonus physical damage against the first target and deals 120% damage to  monsters and modified damage against  minions.

PHYSICAL DAMAGE: 
 10 / 15 / 20 / 25 / 30
 (+ 110% AD)


MODIFIED MINION DAMAGE:
 60 / 70 / 80 / 90 / 100%

Void Surge  resets Bel'Veth's basic attack timer.

Q | Void Surge | Simplicity overblown

We have another instance of a novel tier description so strap in. When Q is unlocked Bel'veth gains four directional arrows around her, they are somewhat similar to Urgot's passive:

ADD DIAGRAM OF BEL'VETH and URGOT

These directional arrow are used for Q's active which allow her to dash in a target direction, said direction will be in the canal radius of one of the four arrow, using said general direction up. Upon passing through an enemy she deals physical damage and apply on-hit effects but at 75% of their effectiveness. The on-hit effect also only apply to the first enemy hit. Let's stop for a moment and break down the issues going on here.

Is this needed? Would the ability be better off if it was just "deals physical damage on enemies hit"? Yes, it would. Having multiple vectors to account for rarely adds necessary depth, Riot are especially good at adding useless aspects to abilities to pad them out in the hope of making gameplay more 'dynamic'.

Simplifying this ability to only deal physical damage does the following:

- Items are restricted to auto attacks, which the passive entailed was the primary method of damage
- Item diversity remains the same and is used in ways more in-line with the rest of the champions
-

Straight after we see another instance of bloat; Void Surge can critically strike against the first target. This is no different to what was just discussed and does not serve a purpose outside of adding extras to a skill which doesn't need it. Another vector, another problem. Additionally to better suite the jungle first role she deals 120% damage to monsters and minions, improving both clear and farm by a noticeable margin. This is an acceptable addition although a tighter initial design would of course be preferred.

Above and Below
COOLDOWN: 12 / 11 / 10 / 9 / 8
CAST TIME: 0.5
Edit

RANGE: 0 - 660
WIDTH: 200



ACTIVE: Bel'Veth slams her tail down in the target direction that deals **magic damage** to enemies hit,  knocks them up for 0.75 seconds, and  slows them by 50% for a duration.

MAGIC DAMAGE:
70 / 110 / 150 / 190
/ 230 (+ 100%
bonus AD) (+ 125%
AP)

SLOW DURATION:
1.25 / 1.5 / 1.75 / 2 /
2.25

If this hits an enemy  champion, it resets  Void Surge's dash  cooldown of the target direction.

W | Above and Below | The least offensive

Phew, we can take a break after that ordeal and relax with a more simple skill, in fact, Bel'Veth's most simple. Above and Below is a directional AOE (width based) knockup, sounds harmless and generally is but there are several minor aspects of this ability which tip it into the negative zone.

Most notably is that of a potent slow combined with the high damage and low cooldown. Typically during design analysis we ignore the majority of numerics applied to said design, however, if said numerics are clearly fundamental to a design, for example: low cooldown, high damage, fast

attack speed, big AOE, etc. Then they warrant investigation. In this case we have a fundamentally solid ability which ties nicely with the auto-attack focus of Bel'veth drowning in non apparent extras which build up to produce a problem.

Let's address the slow first, 50% slow for a max duration of 2.25 seconds on an 8 second cooldown (Base rate, assumes no CDR) with a knockup to start. This level of mobility reduction is not egregious in most cases but to whom wields said ability is the point of contention here. If a support was to have access to this ability then there would be little issue here, in fact the majority of support CC is more potent than this.

The first counter argument to this is that Bel'veth is primarily a jungler and thus this ability adds a bulk of her ganking potential. **This is true.** When viewed in a vacuum this statement is correct, however as is the theme with Bel'veth, this is just one ability with bonuses added to it in a sea of overdosed designs. Taking the slow away and slightly increasing the knockup would retain a great majority of the ganking capability due to the simple fact that ganks imply the presence of other players.

Knockups are the strongest CC next to stuns and should be treated as such, the extras here are just spiralling the balance out of control and allowing the rest of Bel'veth's overturned kit to thrive more than they should be allowed to.

E | Royal Maelstrom |

R | Endless Banquet | ...

Finally we arrive at the ultimate, the worst offender and the final nail in the coffin for Bel'veth. This ultimate will be broken down into sections to make things easier to digest but before we get to that, let's address the elephant in the room. **We already have enough bloat, unless the simplest of ultimates is implemented than nothing is really going to work that well.**

Endless Banquet	COOLDOWN: 1	CAST TIME: 1	RANGE: 350	Edit
	EFFECT RADIUS: 500			
PASSIVE: Bel'Veth's basic attacks	BONUS TRUE DAMAGE:			
on-hit apply a mark to the target for 5 seconds, refreshing on subsequent hits.	6 / 8 / 10 (+ 12% bonus AD)			
Every second attack on-hit against the marked target deals bonus true damage and generates a stack of <i>Endless Banquet</i> that increases this damage by the same value. This effect stacks infinitely, but is capped at 5 stacks against epic monsters. The mark and stacks expire upon attacking a new target.	MAXIMUM MONSTER DAMAGE:			
	30 / 40 / 50 (+ 60% bonus AD)			

In just the first part we have failed to achieve a closer we wanted and instead have multiplied the bloat to new heights. Any on hit-effect applied by Bel'veth's auto attacks applies a mark to that target for 5 seconds, refreshing on subsequent hits. Any hit against a marked target deals bonus true damage (damage which applies its raw value, ignoring any form of resistance) as well as generated a stack of *Endless Banquet*, a buff which increase this damage by the same value. This can stack infinitely however is capped at 5 stacks against epic monsters (Dragons & Baron). To finalise this first part, the mark and stacks are removed when attacking a new target.

Finally done, so what does all of this equate to? In short, Bel'veth gains stacks when focusing on a single target and deals true damage every so often to cause a ramping effect. This ramp is capped against map objectives and its benefits are removed the instance another target is attacked. The main red flag should be obvious by now, stacks. Stacks are something which should always have the upmost care taken, stacks tend to mean values get out of hand quickly.

In Bel'veth's case we have a rare instance of infinite stacking, something which should 99% of the time be avoided. There are two notable instances of infinite stacking found in LoL which we will reference shortly. The problem is partially solved in the passive itself and makes it glaringly obvious that a problem is there while also showing a solution. Capping. Stacks are capped to a low value of 5 when attacking epic monsters, which means dragons and baron can't be hyper farmed/rushed easily. This is great but it was **only implemented because the stacks are infinite.**

If the stacks were merely capped in its entirety to a value of 5 then we get this:

- There is no disparity between epic monsters and everything else, allowing us to delete the sentence, simply and ability and remove a vector of interaction (less is more)
- There is now a clear anchor of balance to alter, we can change the stack count to control the overall strength
- It is much easier to deal with both from the players perspective as well as the enemies, simple to keep track of at a moments notice. A unique UI element could even be added over the target

This simplification not only helps in balance but also doesn't affect the overall strength of the ability, the reason for this is that any design which is numerically overturned, while strong, is out of place and should not exist. Thus a reduction in power to an acceptable level retains its power in a more realistic context. If for instance an ability dealt infinite damage and instantly killed any target and it got nerfed to still deal a lot of damage, it would for all intensive purposes be just as strong as it now holds a **valid** place in game. Staying high damage, staying strong but in a much healthier place.

The next point of contention is true damage, it shouldn't need to be said but applying true damage to auto attacks is probably the fastest way to an imbalanced character a designer can take. To make matters worse this true damage scales with AD (Attack damage) to ensure it remains powerful at all stages in the game, something which isn't needed if the above stack change and some numerical adjustments were made.

To make matters worse Bel'veth's original pitch and early marketing painted her as a very different champion to what we got. Although the original idea is technically valid, Riot appears to have poorly communicated between internal teams and produced a product which only loosely fits the original concept.

To conclude, Bel'veth feels like a patch work champion which took a core design and decided to add relative interest by applying tags rather than iterating on the fundamentals to conjure up a better design. This leads to an enormous amount of unnecessary content hiding itself as necessary but with no valid justification for its existence.

Bel'veth was poorly received by essentially every player out there and for good reason going so far that subsequent releases took a nose dive in initial reception in the hopes that another "Bel'veth" did not surface.

In short, Bel'veth is one of the worst if not the worst champion ever added to the game and is a testament to Riot's inability to properly adjust to a new philosophy.

Section X | Sub-section F | Kalista

Kalista has arguably the most interesting passive in the game, greatly enhancing the core of input. As stated previously, DOTA's input increases micro engagement rates by adding a layer of depth to each input. Kalista achieves this while still abiding to League's delay free input philosophy, providing a straight increase in micro engagement.

On top of this is a solid somewhat complex kit which takes great strides in providing a high skill ceiling and high enough skill floor to be a joy to learn but not a chore, something many champions fail to do.

Martial Poise
TARGET RANGE: 250 / 265 / 280 (BASED ON BOOTS TIER)
SPEED: 1025 / 1100 / 1160 (BASED ON BOOTS TIER)
Edit



INNATE: Whenever **Kalista** inputs a movement command during her basic attack windup or the cast time of **Pierce**, she will dash in the target direction.

Kalista's dash from **Martial Poise** will be knocked down by any immobilizing or polymorphing crowd control, excluding sleep^(bug).

The range and speed of **Martial Poise** are modified by the tier of **Kalista's** Boots. The base range when dashing from a basic attack is 250 / 265 / 280 (based on Boots Tier) units. This base distance is reduced when dashing toward the direction of her attack, to a minimum of 150 / 165 / 180 (based on Boots Tier) units.

The base range when dashing from **Pierce**'s cast is increased by 50 units. If dashing away from the point of cast, the dash range is reduced, to a minimum of 165 / 180 / 195 (based on Boots Tier) units.

INNATE - OATHSWORN BOND: **Kalista** begins the game with an exclusive Black Spear.

Passive | Martial Poise | High complexity input

An important note here is that Kalista's dash is a 'pure' movement, no catch, no extra tags and nothing fancy. This is due to the fact that said dash can be done after every single basic attack and high tier Kalista players should aim for 95%+ of all basic attacks to be followed by a dash. The range of the dash is based not on movement speed but rather the tier of boots used:

- Standard boots
- Upgraded boots
- Post haste

CHECK BOOT TIERS!!

Additionally the dash distance is reduced when moving directly towards the target to prevent Kalista's chase abilities to be overpowered. This single characteristic does a multitude of important things:

- Moving towards the target reduces input complexity as the mouse does not need to be moved as much
 - Subsequently, moving the cursor away from the target increases input complexity
- Moving towards the target via dashes garners far too much capability for chasing. Given that Kalista is a high damage ranged character, getting a full dash towards her target would make her impossible to shake off
- Enforcing side dashing increases skill floor in an explicit manner, quickly signifying to players that Kalista is an advanced ADC

Pierce
COST: 50 / 55 / 60 / 65 / 70 MANA 8 **CAST TIME:** 0.25 **TARGET RANGE:** 1200
Edit



ACTIVE: **Kalista** launches a spear in the target direction that deals **physical damage** to the first enemy hit.

PHYSICAL DAMAGE:
20 / 85 / 150 / 215 / 280
(+ 100% AD)

If **Pierce** kills the target, the spear continues onward to transfer all of the target's **Rend** stacks to the next enemy it hits. This can repeat indefinitely until the spear reaches its maximum range.

Q | Pierce | Simple with a hint of nuance

Skillshots are as simple as they get and that's a good thing. It's important to have a great deal of abilities across the game which require little understanding to use effectively. The extra flare this ability carries is a piercing ability which occurs on killing the target, this proves extra useful when farming minions.

Sentinel COOLDOWN: 30 CAST TIME: 0.5 TARGET IMMUNITY: 10 RECHARGE: 90 / 80 / 70 / 60 / 50 Edit
TARGET RANGE: 1400 / 5000 TETHER RADIUS: 1100

PASSIVE - SOUL-MARKED: While Kalista and her Oathsworn are tethered, their basic attacks and Pierce apply a Soul-Mark to their targets.

If both Soul-Marks are applied to the same target within 4 seconds, they take bonus magic damage, capped against non-champions, and cannot be Soul-Marked again for a few seconds. Soul-Mark deals a minimum of 75 damage to minions, executes them if they're below +125 health, and is capped against non-champions. Kalista applies the damage on-attack while the Oathsworn does so on-hit.

BONUS MAGIC DAMAGE:
14 / 15 / 16 / 17 / 18% of target's maximum health

MAXIMUM NON-CHAMPION DAMAGE:
100 / 125 / 150 / 175 / 200

ACTIVE: Kalista summons a Sentinel that patrols back and forth on a path along the target location, granting sight of its surroundings as it travels.

Kalista periodically stocks a Sentinel charge, up to a maximum of 2.

W | Sentinel | Utility + damage

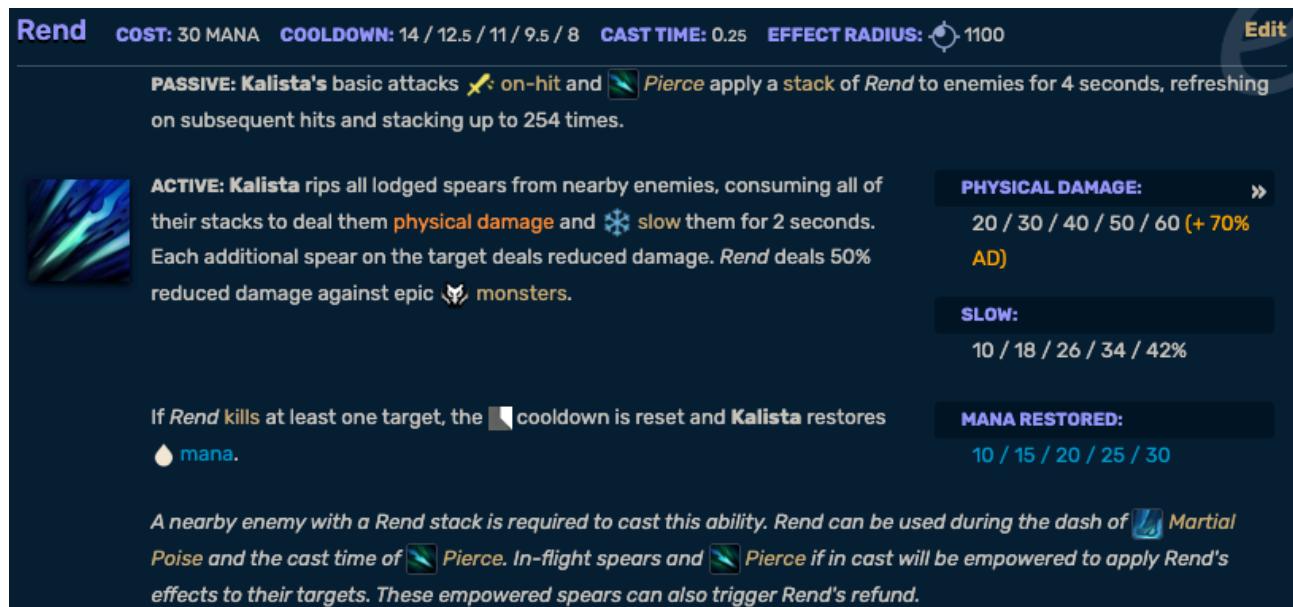
An unusual skill with extra functionality tacked on. Firstly when Kalista and her Oathsworn are tethered their basic attacks as well as Kalista's Q apply a Soul Mark to their targets, what is a Soul Mark? If both soul marks are applied to the same target within 4 seconds the target will take bonus magic damage. There is a small cooldown period between this effect happening again.

Part of this will be tied nicely with the next part of Kalista's kit but before we do that what does this achieve in a vacuum? This ensures a consistent attack approach from Kalista AND her tethered ally invoking teamwork as well as taking full advantage of both kits. For example, Kalista's passive enhances mobility and input, combined with Sentinel the player is encouraged to consistently move -> attack -> move -> attack more so than most champions. It keeps Kalista's damage consistent, improves teamwork and assists in scaling.

Note that Sentinels damage is capped against not champions but deals a minimum amount of damage to minions, improving farming capabilities by a considerable margin. Pushing Kalista towards the 'hyper-farm' category.

An oddity to this ability is it's active, Kalista sends out a Sentinel that paths back and forth along the target location, granting vision. It seems tacked on to give the ability an active component and to be blunt, it is. It is an outlier in her kit and without it the gameplay while affected is not design breaking, several champions in the game have enhanced vision capabilities and one of which is also an ADC, Ashe. The caveat here is that Ashe is a simple champion intended to be one of if not the first champion a new player plays whereas Kalista is intended for higher tier play.

That's where the reason for this active's existence comes in. High tier play. Kalista is on the harder scale of champions and ranks quite high on a list of difficulties, due to this the natural ability of the player behind most likely is much better at teamplay and coordination. In pro play this ability and thus Kalista sees a lot of use, allowing game changing events to occur due to the controllable vision. In short, this section of the ability IS a little out of place from a kit design perspective however fits nicely when viewed from a game wide perspective.



Rend COST: 30 MANA COOLDOWN: 14 / 12.5 / 11 / 9.5 / 8 CAST TIME: 0.25 EFFECT RADIUS: 1100 Edit

PASSIVE: Kalista's basic attacks on-hit and Pierce apply a stack of Rend to enemies for 4 seconds, refreshing on subsequent hits and stacking up to 254 times.

ACTIVE: Kalista rips all lodged spears from nearby enemies, consuming all of their stacks to deal them physical damage and slow them for 2 seconds. Each additional spear on the target deals reduced damage. Rend deals 50% reduced damage against epic monsters.

PHYSICAL DAMAGE: 20 / 30 / 40 / 50 / 60 (+ 70% AD)

SLOW: 10 / 18 / 26 / 34 / 42%

MANA RESTORED: 10 / 15 / 20 / 25 / 30

If Rend kills at least one target, the cooldown is reset and Kalista restores mana.

A nearby enemy with a Rend stack is required to cast this ability. Rend can be used during the dash of Martial Poise and the cast time of Pierce. In-flight spears and Pierce if in cast will be empowered to apply Rend's effects to their targets. These empowered spears can also trigger Rend's refund.

E | Rend | Stack based interaction damage

A potent, intuitive and integral part of Kalista's kit. Rend offers the ability to deal damage based on the amount of stacks applied to an enemy while also offering the flexibility of being able to apply said damage at any time. Before moving forward lets see how this ties up the previous ability, Sentinel. We concluded that Sentinel encourages consistent attacking of the target and as we can see here this ability also encourages consistent attacking of the target. Kalista's basic attacks apply a stack on Rend to enemies for a few seconds **refreshing on subsequent hits**. Before we even get to the active we now have multiple instances of attack encouragement built directly into her kit. This doesn't seem all too special, ADC's are built around the concept of consistent attacking, however **Kalista's ability design fundamentally achieves this by still retaining and interesting kit**.

This results in some of the most interesting gameplay which is easy to grasp from an external perspective, is fun to engage with and moves the player towards the flow state more so than most designs.

R | Fate's Call | Hyper utility

One of the most unique ultimates in the game and a highly confusing one at that. Before diving into the ability there is a special interaction for Kalista at game start, upon entering the game Kalista is granted an active item called the Oathsworn. This item can only be used once on an ally, tethering them together for the remainder of the game.

Fate's Call transports the tethered ally to Kalista, turning them into a ghost (Untargetable and invulnerable and cleansing them of CC, this can be held for up to 4 seconds. The Oathsworn (Tethered ally) can dash a large distance in the target direction OR if the duration ends, whatever direction Kalista is facing. Note that the distance can be chosen if dashed prior to the duration ending, else it shall be at max range. If the now untethered ally collides with an enemy they shall cause a small radius knock and enforce basic attack range.

Once broken down it becomes simple to understand, essentially Kalista turns into a package delivery system and the tether ally becomes a deadly package which can be safely transported into combat. The team composition/combo capabilities of this skill are for all intensive purposes infinite making Kalista an excellent pick in high rank and pro play specifically.

The coordination required with this ability as well as the initial confusion most players face when

Fate's Call **COST:** 100 MANA **COOLDOWN:** 150 / 120 / 90 **CAST TIME:** NONE **TARGET RANGE:** 1200 **Edit**

TETHER RADIUS: 1100



ACTIVE: **Kalista** invokes her tether to retrieve her *Oathsworn* and hold them for 4 seconds, pulling them to her over 1 second and cleansing them from all crowd control, as well as rendering them invulnerable and untargetable for the duration.

While held, the *Oathsworn* is vanished and may dash with displacement immunity to end *Fate's Call*'s effects and reappear at the target location; after the duration, they will automatically do so at maximum range from **Kalista**'s facing direction.

The *Oathsworn* stops upon colliding with an enemy champion, knocking up all nearby enemies for a duration and landing to their basic attack range from the target collided with.

*The Oathsworn must be nearby to cast this ability, and is also silenced and unable to perform movement or attack commands while *Fate's Call* is in effect.*

KNOCKUP DURATION: 1 / 1.5 / 2

first engaging with it makes Kalista a poor choice for low rank and casual play, on top of the previously discussed nuances which makes Kalista a high difficulty champion. To further this disparity, ADC's have the largest disparity of difficulty among all roles with champions like Jinx, Miss Fortune and Caitlyn being a pick and play case where as there are also champions such as Draven, Aphelios and of course Kalista.

Ornn, the Fire Below the Mountain



Channeling DOTA -> Perfection

What is Riot's best design? We've seen Azir being a great example of complexity done right and the opposite with Bel'veth. So far we've got a good understanding of what makes a good design and a poor one, so which design did Riot do best.

Welcome Ornn to the table, the best champion yet to be added and one of the best gameplay designs out there even outside the MOBA genre. **The most DOTA champion added to LoL to date.**

As always, let's get an overview of the kit, but this time a high level version:

ADD HIGH LEVEL OVERVIEW

This high level overview will help as his kit is highly intertwined. A passive providing that much already raises plenty of red flags and implies another Bel'Veth situation, however abilities being large is not in of itself problematic. While shorter, simpler abilities are typically preferred if an ability can make use of several mechanics and subsequently a large description, then more power to that design. **We shall see in our next champion how to do simplicity right while still being modern.**

Right from the start Ornn is defined as a tank in its purest form, no gimmicks, just big numbers tied to a simple mechanic. We will dive into the masterwork system shortly. Moving on we see the bulk of Ornn's kit, his forge system, this is where a familiar aspect should be noticeable, purchasing items without going back to base, hello DOTA. As we shall soon see, Ornn channels a lot of DOTA throughout his kit, which is a major reason why he works so well.

Being able to purchase items (non-consumable) from anywhere on the map makes Ornn's lane pressuring capabilities high but prevent his sustain from being anything special. Consumables such as potions are the primary method of sustain for top-lane during the early game, unless the champion being played has sustain built in (lifesteal, life-regen, etc.). This simple tweak of preventing consumable item purchases also adds another layer of micro depth to item building.

Does one go back to base, restore health and mana and purchase some potions? Or do they stay in lane and spend a larger bulk of gold on some core item such as boots?

Ornn's unique item system automatically makes him one of the most unique champions there is while also placing him on a pedestal of importance for team composition, especially in pro play (Ornn's dominance in pro play will be discussed later). This pedestal is further raised by the next core part of the passive, masterwork items. We shall touch in depth on items in the next main section but as a brief overview there are several categories of items:

- Consumable
- Common
- Legendary
- Mythic

Mythics are the most potent items available, defining builds and driving the bulk of the economy. Ornn is allowed to upgrade mythics to a higher tier called 'Masterwork', these are merely stat boosts but are significant and are available to every member of the team. At level 13, Ornn gets his masterwork (assuming he has a mythic equipped) and then every level after the other members can get theirs (Ornn can choose who gets the upgrade, at level 14+ he can choose himself if he had no mythic at level 13).

Item upgrades tied to a champion once again adds a significant amount of importance to Ornn in team composition which also ties perfectly to his hyper tank nature. As he is naturally higher in importance through both being a tank AND having the ability to access items as well as item upgrades, he naturally slots into his role taking damage no matter the case. Enemies want to deal damage to Ornn because he is a tank and because he can do so much for his team. This makes Ornn's tank role a **true tank role** with little room for change.

Hyper tank + DOTA elements + team player makes a solid foundation to build off, so how did Riot design his kit.

ADD Q

Top laners are built for solo laning, typically meaning they have some form of pressuring ability to gain lane control. While most abilities are in some way shape or form a zoning/pressuring/control ability top laners require extra attention. Ornn is unique in top lane as his core lane control creates terrain. Terrain does two main things:

- Alters pathing
- Interacts with other abilities (Ornn's E included)

Call of the Forge God

COST: 100 MANA **COOLDOWN:** 140 / 120 / 100 **CAST TIME:** 0.5 **TARGET RANGE:** 300 **Edit**

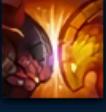
EFFECT RADIUS: 3000 / 2550 **WIDTH:** 340 **SPEED:** 1200 / 100

 **ACTIVE:** Ornn sounds his horn, summoning a lava elemental at maximum range from the target direction that stampedes towards his casting position at increasing speed. The elemental deals magic damage to enemies it passes through and slows them for 2 seconds.

MAGIC DAMAGE:
125 / 175 / 225 (+ 20% AP)

SLOW:
40 / 50 / 60%

Call of the Forge God can be recast after 1.25 seconds while the elemental is active.

 **RECAST:** Ornn dashes in the target direction, though not through terrain. If he collides with the elemental, he sends it stampeding in the same direction. The elemental deals the same damage to enemies it passes through and knocks them up and stuns them for 1 second, reduced to 0.5 seconds after the first enemy champion hit.

TOTAL MAGIC DAMAGE:
250 / 350 / 450 (+ 40% AP)

Each pass applies **Brittle** to targets for 3 seconds and can affect enemies only once. The elemental briefly grants sight around its trajectory as it travels.

Once again Ornn directly interacts with the true fundamentals of the game further setting him apart from other designs. Fissure is also one of the slowest moving skill shots adding more weight to the ability. As previously discussed, adding delays, slows or micro hindrances in general is an effective method of increasing weight. Making the skillshot slow onto of the fissure being slightly delayed when the location is reached is a double delay, vastly increasing the weight over a typical skillshot.

ADD W

Searing Charge

COST: 35 / 40 / 45 / 50 / 55 MANA **COOLDOWN:** 16 / 15 / 14 / 13 / 12 **CAST TIME:** 0.35 **Edit**

TARGET RANGE: 800 / 650 **EFFECT RADIUS:** 360 / 150 **SPEED:** 1600

 **ACTIVE:** Ornn charges in the target direction, dealing physical damage to enemies he passes through and stopping upon colliding with terrain.

PHYSICAL DAMAGE:
80 / 125 / 170 / 215 / 260
(+ 40% bonus armor)
(+ 40% bonus magic resistance)

If Ornn collides with terrain during the charge, he creates a shockwave that knocks up and stuns nearby enemies for 1.25 seconds and deals the same damage if they were not already hit by the charge.

The shockwave destrcts the pillar formed by  Volcanic Rupture and partially destroys terrain created by enemy champions.

Previously we mentioned a synergy between Q and E, this is due to E being a ‘terrain’ first interaction ability. Yet again we have another instance of Ornn directly interacting with the core fundamentals of the game which also doubles as a movement ability.

Before we get into the core of the ability there is one important note which makes a significant difference. Searing Charge has a sight delay to it before the charge begins, this subtly falls perfectly into DOTA’s philosophy and makes the ability have a level of nuance most do not. The skill floor remains almost untouched but the skill ceiling is increased considerably.

Assuming Ornn collides with terrain a small shockwave knocks up and stuns, note that if the pillar was hit it is destroyed (Also deals damage to terrain created by other champions, of which there are few). Searing Charge requires excellent situational awareness to use efficiently, it’s shockwave

radius falls into the middle of reducing the frustration associated with misses while providing enough range to use in ways most would miss, some examples:

- Charge into thin terrain to hit champions on the other side
- Charge into areas of the terrain which in a moments notice may seem like a miss but in fact just catch an enemy inside (Knowing the radius is a significant skill ceiling)

It states that enemy terrain is damaged on impact, but this also states to the player to use allied terrain to your advantage. Adding, yet again, another layer of teamplay/composition to the mix. This simple yet versatile skill is a cornerstone of Ornn's design and subsequently a cornerstone of simple MOBA games design done right.

Several times now Ornn has been referenced to his ability in pro play, being a high pick rate champion since his release. Few champions in LoL have this status with Ornn arguably being the most picked champion since the modern era begun (2017/2018). To add the cherry on top, **Ornn's ultimate is the best in the game fully encompassing teamplay**. The combination of his passive and ult alone make him peak team composition potential.

Call of the Forge God is a massive knockup/stun based projectile with a two cast interaction, the first cast consists of Ornn calling in the ram towards him from a distance, the second cast is when Ornn strikes the ram when it collides to send it in another direction and cause the knock-up to anyone in its path. This two cast interaction adds a simple yet critical layer of skill pushing Ornn's weight to an even greater height. This ability is the primary reason behind pro players heavy adoption in many team compositions, especially after release where the pick-rate was extremely high.

There is a noticeable difference between team fights in casual player, ranked play and pro play and thus the team compositions of each bracket change drastically. Team fights are hectic regardless of skill level or team play, but even at a quick glance the difference between casual and pro play is apparent. While still hectic pro players are more methodical in their fights with a strong inter team communication, combined with high reaction times and high tier gameplay (movement, skill shots, item usage, etc.) this results in team fights which can shift in ways which are more apparent.

Casual and ranked play tends to be frustrating due to the lack of team communication (Yes, ranked play rarely has solid communication) and this leads team fights going any which way for reasons only realised until after the chaos is over. The balance in a pro fight can be viewed in real time and the answer as to why a team won is apparent the second the fight ends.

So where does Ornn come into this?

Vex, the Gloomiest



Modern classic

Of all the modern champions added over the past few years only one stands out as a great design which both perfectly encompasses the modern champion architecture as well as the traditional fundamentals which should be stuck to.

Let's summarise what a modern champion tends to be:

- Dynamic
- Mobile
- Loaded

And lets summarise what a traditional champion tends to be:

- Simple
- Engaging simplicity
- Single core mechanic/hook/catch

Vex balances modern and old-school/fundamental in a way which still makes her unique and engaging but also viable, something some modern champions struggle with. Before diving into the kit lets get a refresh on the kind of things modern champions have and the kind of things old champions did. Mobility is deeply rooted in the philosophy of modern champions in ways older champions or many DOTA champions do not. While a vast majority of champions have mobility in some way shape or form, modern champions typically have a significant advantage and a much stronger connection to mobility. For example:

- Older champion: +20% movement speed for 3 seconds

Doom 'n Gloom
STATIC COOLDOWN: 25 / 22 / 19 / 16 (BASED ON LEVEL)
EFFECT RADIUS: 1600
Edit

PASSIVE - DOOM: Periodically, Vex empowers her next basic ability to knock down and fear enemies hit for 0.75 / 1 / 1.25 / 1.5 (based on level) seconds, during which they are slowed by 60% – 99% (based on distance from Vex). If Looming Darkness triggers Doom, enemies hit will flee from the epicenter instead.

Doom's cooldown resets upon respawning.

INNATE - GLOOM: Nearby enemy champions and monsters that dash or blink will be marked with Gloom for 6 seconds. Vex's next basic attack, which becomes non-projectile, or basic ability hit against an enemy with Gloom will detonate the mark. Looming Darkness will also inflict Gloom, but cannot detonate it.

Gloom's detonation deals 30 – 140 (based on level) (+ 20% AP) bonus magic damage and refunds 25% of Doom's cooldown. Against non-champions, this instead deals 40 / 45 / 50 / 55 / 60% (based on level) damage and refunds 10% of Doom's cooldown.

Personal Space Edit

COST: 75 MANA **COOLDOWN:** 20 / 18 / 16 / 14 / 12 **CAST TIME:** 0.25
EFFECT RADIUS:  475 / 550

ACTIVE: Vex emits a shockwave around her before the cast time, dealing **magic damage** to nearby enemies and granting herself a  shield for 2.5 seconds.

SHIELD STRENGTH:
50 / 75 / 100 / 125 / 150
(+ 75% AP)

MAGIC DAMAGE:
80 / 120 / 160 / 200 / 240
(+ 30% AP)

- Modern champion: Gain 3 dashes which reset on kill OR when using another ability in a certain scenario

This disparity has caused most of the outrage in the community for a valid reason as older champions are simple left in the dust in both terms of viability and fun factor. So how did Vex break this mould? By assigning mobility to a heavy constraint, **Vex's mobility is an ultimate skillshot ability tied to a re-cast**. An elegant solution to a problem bought upon by Riot's inability to understand that their modern philosophy isn't working.

However that is just one piece of the puzzle and will be dissected in detail later on. For now let's look into the core of Vex's kit and see in what other ways she excels as a design, starting with her passive:

At first glance this seems problematic, however, remember we stated that a large skill is not

Mistral Bolt Edit

COST: 45 / 50 / 55 / 60 / 65 MANA **COOLDOWN:** 8 / 7 / 6 / 5 / 4 **CAST TIME:** 0.15
RANGE:  1200 **WIDTH:**  360 / 160 **SPEED:** 600 / 3200

ACTIVE: Vex launches a wave of mist in the target direction that deals **magic damage** to enemies hit. After travelling 500 units, the wave accelerates but also narrows itself.

MAGIC DAMAGE:
60 / 105 / 150 / 195 / 240
(+ 70% AP)

indicative of problems associated with said skill. As we shall see, this ingenious passive ties flawlessly with the remainder of her **simple** kit.

DOOM is the first key aspect of Vex, when her ability strikes they are knocked down, feared and slowed, not sounding too balanced however the duration of this ability is short even when at max level. To add to this, CC (Crowd Control) is needed **MORE** in League, not less so having a strong CC is a great addition in the real world. The second part of this passive further balances this by changing the effect entirely. GLOOM is an anti movement effect by providing bonus damage as well as cooldown reduction to DOOM.

As we shall see this flip-flop interaction is integral to moment to moment gameplay. We shall dive deeper into this passive as we go through the rest of kit.

Simple and to the point, rarely seen since the old days and a breath of fresh air. Vex launches a speed ramping skill shot in the target direction. This unique attack pattern is a joy to interact with and has balance built straight into its core by having the projectile get smaller as it goes faster. There isn't much else to say about this and this is why Vex works so well.

This theme of simplicity at the core of a skill with the GLOOM and DOOM mechanic as the modern aspect is what makes Vex the diamond in the rough she is.

AOE damage at the players location with a shield. Done. This does a multitude of things:

- Makes Vex more viable at defence, reactively
- Ties in with mobility aspect of kit discussed earlier (Get close to deal AOE)
- Excellent for lane control, especially mid lane (Vex's main role)

- Excellent for farming jungle (End-game)
- Simple to use, not much of a skill floor or skill ceiling (Extra simple abilities are welcome)
- Simple to understand from every players perspective

Shields are a touchy subject, due to LoL's high damage environment having a shield massively increases survivability, however, what about everyone else? The issue LoL faces more than more balanced games like DOTA or even Smite is that the disparity in power between kits is greatly exaggerated when simple changes or additions are made. Vex having a shield for 2.5 seconds seems minor but under the surface is quite the ingenious solution to a game wide problem.

CHANGE?

Looming Darkness **COST:** 70 / 80 / 90 / 100 / 110 MANA **COOLDOWN:** 13 **CAST TIME:** 0.25 **TARGET RANGE:** 800 **Edit**

EFFECT RADIUS: 200 – 300 (BASED ON CAST DISTANCE) **SPEED:** 1300

ACTIVE: Vex tosses her Shadow to explode at the target location, dealing magic damage to enemies hit and slowing them for 2 seconds. The explosion's radius increases based on cast distance.

MAGIC DAMAGE:
50 / 70 / 90 / 110 / 130 (+ 40% AP)
45 / 50 / 55 / 60% AP

SLOW:
30 / 35 / 40 / 45 / 50%

Looming Darkness will cast at max range if cast beyond that.

Third times the charm and Vex has delivered another simple ability, one which causes a targeted explosion which slows on hit. To add some simple spice this explosion increases in size depending on how far it travelled which alters gameplay in a few ways.

Note that damage is flat, only the scale changes with distance, this makes the explosion more optimal in its purest form at the maximum distance however its effectiveness is not based on distance. For example, in given scenarios not reaching max distance is irrelevant to the output of the ability, single target usage isn't altered. As simple as this sounds in concept it does a lot for the ability as a whole by separating it from most modern champion designs.

If this ability was to be redesigned to fit the average modern champion the damage tag would most likely scale, which makes balancing hard and alters its overall effectiveness far too much. The player cannot guarantee that the usage of this ability can be exactly what they want every single time they use it, thus reducing the amount of variability in the skill itself greatly assists in providing a more enjoyable experience.

Gameplay is also altered by providing a slight but welcome skill ceiling, much like Ornn's E, knowing the radius can be taken advantage of explicitly.

Shadow Surge **COST:** 100 MANA **COOLDOWN:** 140 / 120 / 100 **CAST TIME:** 0.25 / NONE **RANGE:** 2000 / 2500 / 3000 **Edit**

EFFECT RADIUS: 650 / GLOBAL **WIDTH:** 260 **SPEED:** 1600 / 2200

ACTIVE: Vex sends her Shadow in the target direction that grants sight around its trajectory and deals magic damage to enemies hit.

MAGIC DAMAGE:
75 / 125 / 175 (+ 20% AP)

Shadow stops upon hitting an enemy champion to mark them for 4 seconds, during which they are revealed. Shadow Surge can be recast while the target is marked.

RECAST: Vex dashes towards the marked target with displacement immunity. Upon arrival, she consumes their mark and deals magic damage.

MAGIC DAMAGE:
150 / 250 / 350 (+ 50% AP)

If the target dies within 6 seconds of being marked, Vex can cast Shadow Surge again within 12 seconds at no cost after 0.5 seconds.

It's time to return to the ultimate, as previously stated this is Vex's movement ability. Deep dive time.

There are several important aspects to note:

- Grants line of sight
- Mark based
- Reset

Granting line of sight is an incredibly rare addition to an ability and for good reason, as we learnt when understanding the fundamentals of a MOBA vision is critical to both micro and macro. An ability which is able to do this has an enormous amount of utility associated with it both increasing usefulness for Vex and the rest of the team.

The inherent balance of this is it being associated to a **high cooldown** ultimate, combined with the projectile moving fast the vision granted is short lived but still relevant. The opposite can be said with Ashe, a champion whose W is a short cooldown, long range visibility shot. Ashe is 90% DOTA and at the time of League's release this ability was strong but fit, in modern League's balance landscape Ashe is one of the strongest champions in the game outside of this W. Being able to get vision on a whim is far too potent.

Assigning a movement ability to a skillshot ultimate does the following:

- Greatly increased skill floor and skill ceiling
 - In modern League a higher skill floor movement ability is a welcome addition
- Increased weight, missing this ability is game changing, greatly reducing Vex's effectiveness in combat
- Easier to read
 - Most movement abilities happen before the enemy even knows, this adds a lot of frustration to moment to moment gameplay. Being an ultimate & a skillshot enhances the importance of this skill making it easy to read in essentially every scenario

A simple way of describing modern design philosophy is making every skill feel/act like an ultimate, most champions ability descriptions are extensive with tags and numbers littering every sentence. Vex broke this hold by keeping things simple and moving the power to the ultimate (As a champion **SHOULD** be designed). Ultimates are named that for a reason.

Upon impact the target is marked, when the ability is recast Vex will move to the marked target and deal damage on arrival. This recast mechanic adds a lot of expression to gameplay while still restraining movement, something which cannot be said about most over modern movement abilities.

Section 6: Economy & Itemisation

Itemisation is a wide and deep aspect of any game, MOBA's especially, this is where the majority of issues can lie. In the case of LoL, items are a significant issues which have never been properly implemented even after an entire rework to make it more like it's parent (DOTA).

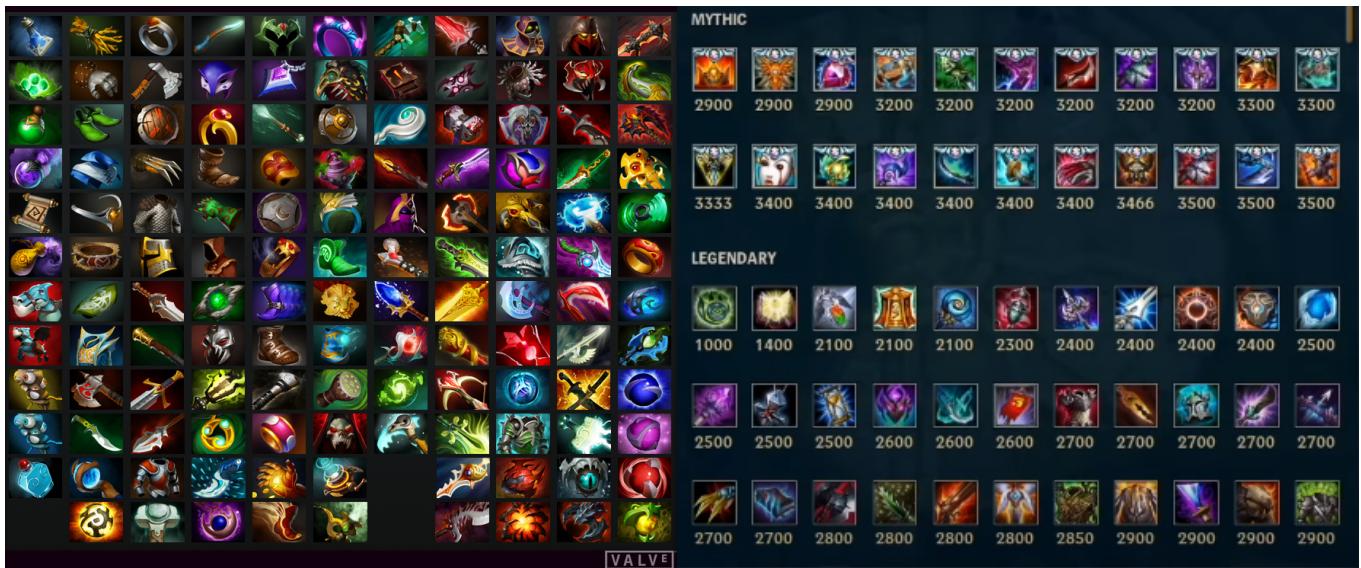
Just like before we shall first get an overview of DOTA's so we can get a good understanding of what an item system even is as well as the characteristics of itemisation. Items enhance player ability and capabilities by providing stats and/or functions. Let's start basic.

Section 6 | Basics

Every player has an inventory consisting of 6 slots. In the case of DOTA, there are extra slots to handle certain items. This will become important later. Items are purchasable entities which increase the players strength and are the primary form of power in each and every game. Items are an **ABSOLUTE** (MOBA's can't traditionally exist without this) being second in necessity to heroes/champions.

{DOTA: Left, LoL: Right}

Items also provide the large majority of permutation math behind game-to-game possibilities, driving meta, champions chose, communication and most importantly, the economy. Items are



the foundation of a MOBA's economy and is a delicate aspect to tune but is the aspect which requires the most tuning, making it a necessary, volatile system.

Section 6 | Sub-section 1 | Early game itemisation

Before we can take a deep dive into economy we should get a good understanding of how the start of a game goes. Early game items are a straightforward concept which is easy to balance and simple to grasp for all players leading to a relatively boring yet foundational step to the remainder of the game.

Section 6 | Sub-section 2 | Economy basics

Section 6 | Sub-section 2 | sub-section 1 | Passive gold generation

Every player is provided with passive gold generation at a set rate, only changing for other game modes. Passive gold generation is implemented to ensure a steady tick along to end-game, while farming exp and levelling uphill drastically shift the game towards end-game having a consistent tick is necessary to ensure it.

Just like the real world economy drives everything, having a form of “universal basic income” kept everybody on a more even playing field and keeps the game flowing. This effect can be seen if the passive gold generation is increased as is seen in LoL’s game mode of URF (Ultra-Rapid Fire) or DOTA’s ‘turbo’ mode. These game modes provide far higher passive gold generation and thus the game length is much shorter (More evident in DOTA’s version).

Section 6 | Sub-section 2 | sub-section 2 | Last-hitting

First introduced back in the Warcraft III days was the concept that in order to gain the gold a creep was harbouring was to deal the final blow. A concept which has stuck with the genre to this day. Last hitting is a micro gameplay element with major macro economic consequences (More so in DOTA’s case).

When a creep (Lane minion, jungle creep, objective, etc.) is killed by a player, that player gets the gold, if it dies to other means, no gold is granted. **This simple element in a pillar of the genre as a whole.**

Section 6 | Sub-section 2 | sub-section 3 | Jungle

While DOTA and LoL have separate philosophies to the jungle their role remains the same. This carries over to the economy and how it creates a core gameplay loop, driven by the economy. As just stated, last hitting is integral to the concept of farming and the jungle makes up a large bulk of this. In LoL as the game shifts towards the late game farming in the jungle becomes more prominent from all members of the team. Essentially turning the jungle into a market.

During early game the jungler gets this to themselves, this might sound unbalanced but lane minions for the other members account for this difference.

Section 6 | Sub-section 2 | sub-section 4 | *Enemy kills*

Enemies provide significantly more gold than creeps and is the primary incentive for killing them, yes even over map control. Economy drives the entire state of the game and having more gold than the opponents puts you at the advantage, thus shifting map control indirectly in your favour.

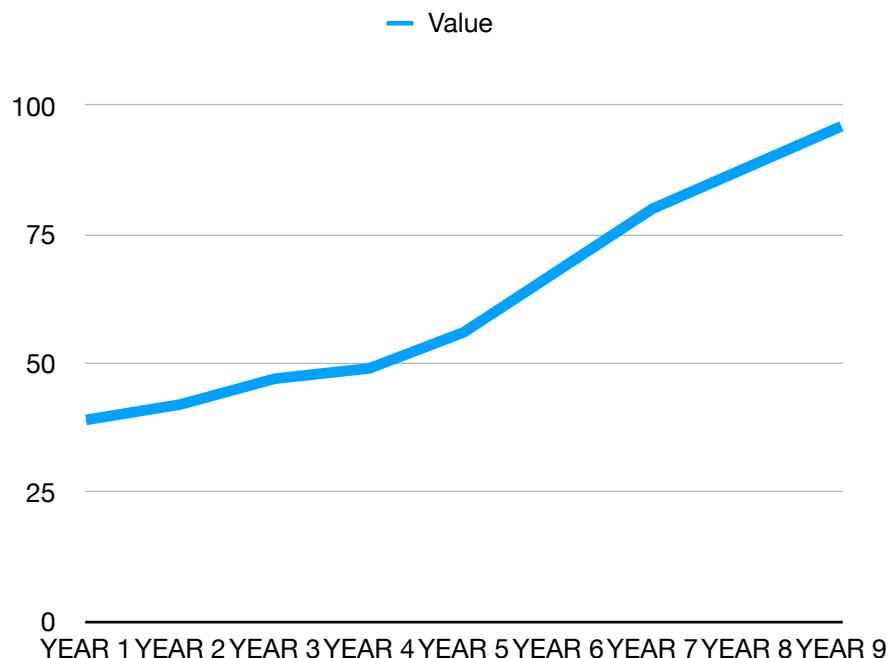
To further elaborate this point let's look at a general example of potential vs reality. Viewing something at the reality level gives the majority of information needed to infer an opinion on the state of something and make judgement on it. What actions to take, where things may go and what steps can be taken at different points to change things.

However...

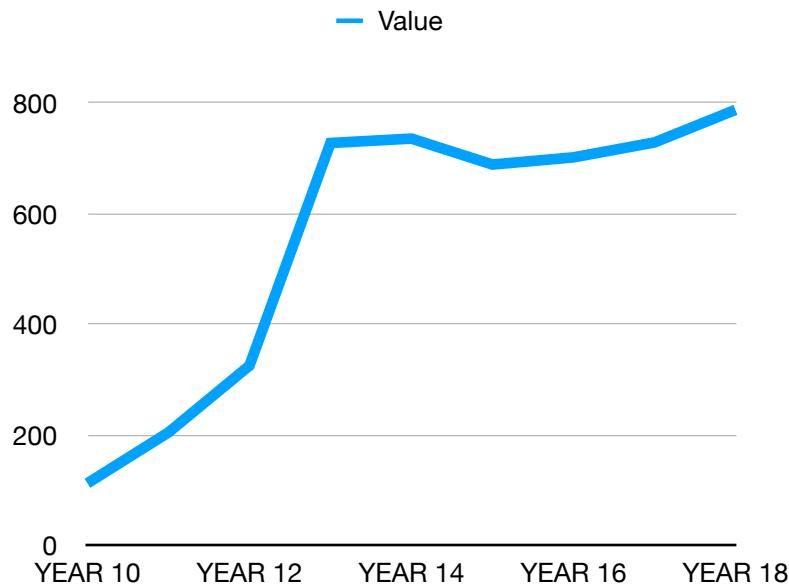
Viewing things at the potential level opens up a grander view providing a clearer picture of the thing in question. A good real world example of this is the stock market. A companies stock is actually not very indicative of its 'value'. There are two types of value at play here, **actual value** and **stock value**. The stock value is what the market determines a stock is worth and in most cases provides a good overview of a companies worth.

But how do you make smart investments, handle projections and predict markets? For that the potential must be analysed, a stocks potential is extremely important to understand and may not align with the reality view. There is even terms for this in the world of economy to refer to current prices, future prices, total value and even those who focus on actual (bear) vs real (bull) values.

Let's look at an example. Say a company has a share price of £100, this gives us a birds eye view of this companies worth, but it doesn't tell us much about anything outside the glance just taken, let's expand our view and look at previous prices:



Great, looks like this stock has been having a steady increase in value, we can use this information to predict what will happen in the future, let's fast forward in time to see what happens:



Well, that's far more than what the previous months told us. We expected a steady increase and yet we got an enormous spike with a steady month on month gain. What happened? The reason is we don't have a good understanding of this company and thus can't make good predictions of what may happen to it in the future, we only went off what 'reality' was telling us where as its 'potential' indicated a far greater increase.

[As a tangent, shorting stocks tends to be done by people who focus on current value. Those who see potential in a stock don't short but rather continually invest, with less interest in the current value]

How does this tie back to a MOBA. Simple, **the potential of a team is more valuable than their economy**. Let's shift from a stock market example to a game of League and see if we can infer the state of things.

General overview of two teams

TEAM 1 GOLD: 26553	TEAM 2 GOLD: 22489
PLAYER 1 GENERAL POWER: 6	PLAYER 1 GENERAL POWER: 7
PLAYER 2 GENERAL POWER: 5	PLAYER 2 GENERAL POWER: 10
PLAYER 3 GENERAL POWER: 5	PLAYER 3 GENERAL POWER: 3
PLAYER 4 GENERAL POWER: 2	PLAYER 4 GENERAL POWER: 2
PLAYER 5 GENERAL POWER: 4	PLAYER 5 GENERAL POWER: 1
TOTAL POWER: 22	TOTAL POWER: 23

Here we have team 1 at a gold advantage with evenly distributed power and team 2 with a gold disadvantage but a more interesting team power distribution. There are two members of team 2 which are considered a threat, one of which is slightly stronger than each member of team 1 (Player 1) and one of which is the strongest in the game by a noticeable margin (Player 2). While the majority of team 2 will have a tough time fighting, team 1 should take extra care.

Their gold advantage means they are ahead in economy but not necessarily overall depending on how it is viewed.

Like enemies towers also provide a substantial amount of gold, this is an area where LoL branched off in an interesting as well as effective way. Tower plating. Introduced in Season 9, tower plating is an early game mechanic by modifying towers. The outer towers gain 5 plates which upon destruction grant a set amount of gold to all champions inside the radius (Split evenly), the plates still make up the same amount of health and are instead HP markers.

Section 6 | Sub-section 2 | sub-section 6 | Bounties

Bounties are a form of economic catch up as well as a gameplay incentive. In simple terms a player which is on a kill streak has a bounty placed on them, this bounty increases based on the kill amount and how far ahead they are in comparison to the rest of the games players. The player who succeeds in killing this bounty is granted the bounty gold **along with** the base gold of a kill, gaining a significant portion of income to close the gap and recuperate a portion of the losses taken from said bounty players kills.

As of season 12, map objective bounties were also implemented extending this same mechanic to the environment to make economy more balanced in general and provide further incentive into engaging in map objectives. As a team based game map objectives are core to shifting the tide of battle if the objective is potent enough, thus a bounty system being applied is an excellent addition.

Sounds like League implemented a great catch up mechanic, right? Yep! Bounties are an excellent addition which applies a universal balance by making team economies a tighter fight and generalising incentives. A minor gameplay layer is added on the physiological aspect with bounties, particularly when applied to players. Higher value targets are innately higher priority and thus create a scenario of dopamine priming. The satisfaction of both visual, auditory as well as gameplay implications are enticing and forces a higher level of focus from the player. Strategies on how to obtain the bounty, the care which needs to be taken to not increase (player with bounty remains in a better position), the possible teamwork coordination of who gets the bounty and much more.

Gameplay elements which are of higher value whether through gold or not will always activate a higher level of response from the player, having that reflect in the economy is an excellent addition.

Section 6 | Sub-section 2 | sub-section 7 | Lane differences

Top lane is solo and long, mid is solo and short, and bot is a duo lane. How does this affect economy and how does each champion archetype -> lane/role affect things. Items essentially fall into these lanes due to the fact that Riot designs champions to fit a specific role/lane.

Section 6 | Sub-section 3 | Active items

Active items are prevalent throughout DOTA, leading to higher engagement rates and a more diverse set of items (active abilities > passive abilities). Is this not problematic? Partially.

DOTA having a large set of active items which are used by all players can prove problematic in the following ways:

- Greater knowledge requirement
- Steeper learning curve
- Greater situational/game awareness
 - Not new player friendly
- Higher short term action stress
 - More inputs in a small amount of time
- Higher long term action stress
 - More inputs over a long period of time
- Power scaling issues

And it's benefits:

- More dynamic gameplay
- Higher short term input rate
 - Increased input = increased neural response
- Higher long term input rate

- Increased thought to both situational and game awareness
- Increased knowledge requirement
 - Can be seen as a benefit, steeper learning curve = intriguing

Section 6 | Sub-section 4 | Unique systems (DOTA vs LoL)

Both DOTA and LoL have adopted unique systems to better suite their core game loop.

Section 6 | Sub-section 4 | Sub-section 1 | DOTA

REDO THIS INTRO

Neutral items, an entire item pool unique to jungle creeps and with their own dedicated slot in a player's inventory. Neutral items are a universal item pool with a high level of randomness applied with a wide variety of effects. The way natural items obtained is where things get extra interesting, as stated previously they are associated with jungle creeps, meaning that a jungle creep must be slain in order to obtain one.



The nuance applies in the following ways:

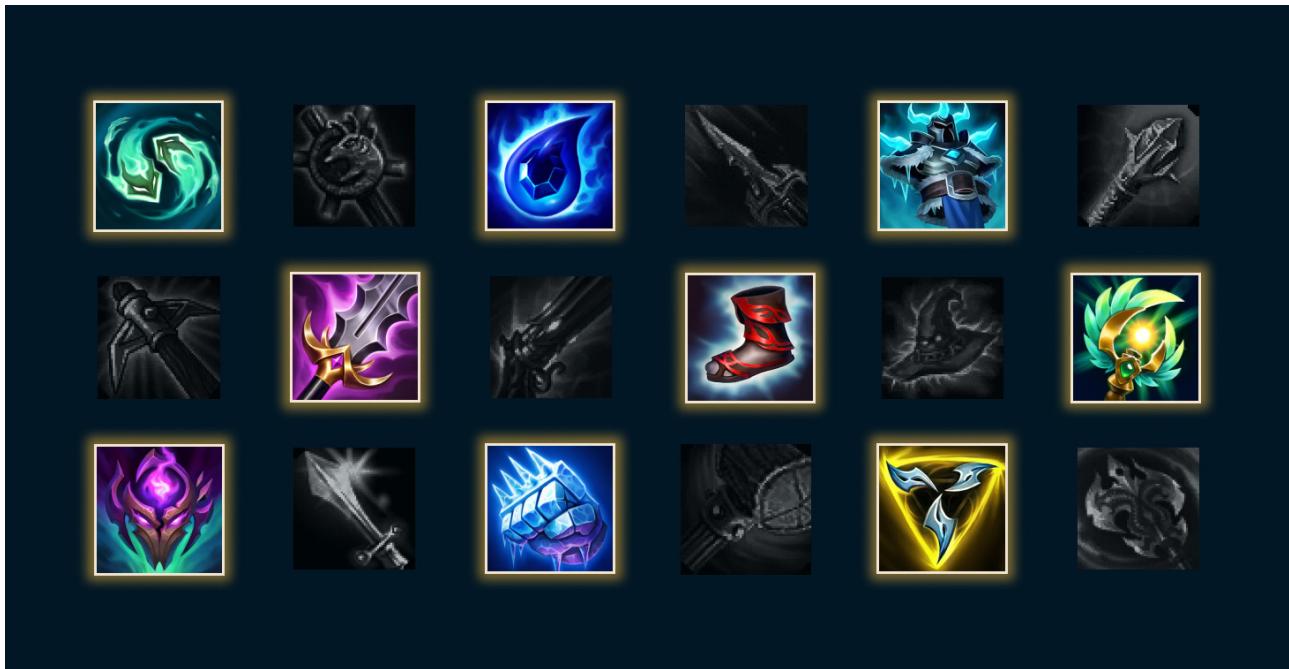
- Random drop chance
- Random item per drop
- Tiered system:
 - 1st tier: 0:00 -> 15:00 minutes
 - 2nd tier 15:01 -> 30:00 minutes
 - 4rd tier 30:01 -> 45:00 minutes
 - 5th tier 45:01 -> 60+ minutes

The higher the tier, the higher the power, this is so they can scale with the rest of the game while still being partially constrained to prevent the random nature of the jungle chain reacting into a

balance problem. Neutrals can generally be seen as utility items, primarily within the lower tier, in higher tiers it is common for items to be on par with the standard expensive items of the regular pool.

Section 6 | Sub-section 4 | Sub-section 2 | LoL

Mythic items, as of season 11 LoL introduced the mythic item system along with the total item rework. Mythics are considerably more powerful than legendary, the tier below, and are typically purchased first for the overwhelming majority of all initial purchases due to said power. Let's dive deeper.



Mythics grant unique effects as well as a mythic passive which affects base stats based on the amount of legendary items currently in the players inventory. This power is further boosted by typically providing the highest base stats over legendary items as well as naturally having the highest economic value. Sounds like a good system on first hearing, however, problems arise fast.
SLIGHTLY CHANGE

Firstly, the extreme power to value ratio is hard to skip and thus mythics are 99% of the time purchased first. Build diversity is hindered from the very beginning of the game as the amount of options is vast but the amount of viable options is slim (modern balance makes only 1-3 mythics viable, with roughly 6 mythics per role). Items systems are intended to extend the capability of a champion while also providing a high level of dynamic, emergent gameplay and foster diversity. The mythic system severely impacts this by inherently providing a cookie cutter approach to builds as well as reducing early-mid game item diversity.

There is another side to the coin to this. Mythics can be seen as a streamlining of the item system:

- Provide player with several great, fun options
- Easier to handle own build
- Easier to handle teammates and enemies itemisation

Unfortunately this system leans towards a failure for the following reasons:

- Riot's balance has made mythics a severe pain point and as stated earlier most mythics of a given class get outclassed by 1-3 others
- Being easier to build your own character is a way to combat ever growing bloat, but also hinders the level of depth to harm experienced players. Mythics go too far towards QOL rather than a competent implementation of another item tier
- Mythics are the most identifiable and clear of all the items. Great for teammates and enemies. However the previous statement counteracts this. Everyone having an easier to

is more streamlined but also a considerable removal of depth and takes a great deal of the “game” out of the “game”.

This system is made worse by Riot’s implementation of an item recordation system. Item recommendations are a great addition and should be adopted by a game of this scale, however, the balancing and mythic system hinders the full potential.

Item recommendations would be fine assuming the following:

- Mythics items were not implemented or were closer in power to legendary
- Options were suggested so that the item pool is not hindered
 - Elaborated below
- Tutorial was vastly improved
- Bloat and overall game balance was in a much better state

We have already discussed the first point, so let’s see how we can improve the way the recommendations are presented. League’s current implementation is:

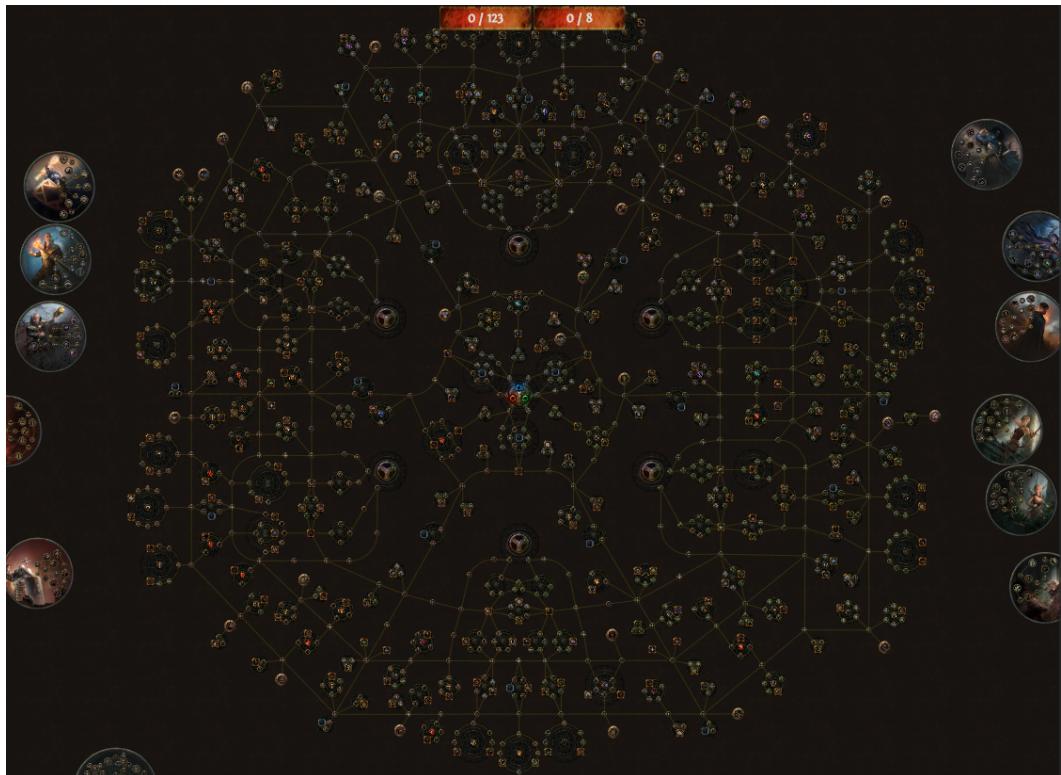
ADD IMAGE

So what exactly is the problem? Let’s look at the full item grid to understand:

ADD IMAGE

The issue is the shadowing of the item system. Many times the act of simplifying a system ends up complicating things through the process of **abstraction affecting functionality**. Let’s look at another game to get a great example from.

Path of Exile, or just PoE, is an ARPG with a dizzying amount of content. So much in fact that in just the first minutes of the game several people quit. This doesn’t sound like good design. So much for making those first 15 minutes count. In actuality this is a good thing, for the nature of the game PoE is and what said content causes this early leave.



PoE’s skill tree is incredibly expansive and deep, so much so that a great portion of a players time can be spent inside it fine tuning and planning ahead, essentially a game within a game. The issue lies in how one portrays such a **vast piece of content** which is **absolutely integral to the core of**

the game. On one hand you can slowly reveal parts of the skill tree, perhaps lock areas behind set parts of campaign progression and notify the player of that. However all that does is the following:

- New players are essentially lied to and given a false sense of complexity. Engaging early on but unappealing later
- Existing players are harmed as they no longer have what they are used to

So limiting the skill tree in some way even if only visually assists those first 15 minutes BUT still ends up turning into the massive tree the game is famous for. Do you draw out the reveal so long to the point where it is a chore? Do you make it fast, essentially defeating the point in the first place? Do you add mechanics into the reveal to makes things more interesting, adding a layer of complexity which could be avoided?

The solution is simple and is what is currently implemented.

Show the player everything all at once, no barriers. Doing this achieves the following:

- Players know exactly what they are getting in for and what the type of game it is
- Players know of the complexity and learning curve ahead, either causing them to quit or encourage to learn and explore
- Existing players always retain their familiarity
- The tree becomes a platform for builds, being so large is healthy for the core game
- Knowledge required is vast, bringing great joy and investment for players
- Excellent way of displaying progression, nothing is locked, hidden or reduced. Full tree, watch character grow as times goes on into said tree
- Having full view at all times is great for planning
- Design can be kept simple on a fundamental level, no need for extra mechanics, UI or UX
- Game retains identity, PoE's skill tree is its defining feature

ADD QUIN Q&A

Knowing all this, can we improve mythic items beyond some UI QOL to retain their unique nature while still being the most powerful, interesting set of items in the game. We can, simply by shifting their focus from early game to late game. The core problem as just discussed is that mythic items are an almost forced choice during early game, harming diversity and producing less emergent gameplay.

If we shift mythics to be a late game item we achieve the following:

- Legendary items go back to how they were, widening the viable item pool through most points in the game
- UI can cater more to an open choice, retaining new player assistance without hindering experienced player knowledge
- Mythics become exciting as they are built up to through the course of a game, as opposed to being a 'cookie cutter' option
- Mythics can find a more appropriate place in late game, the most hectic, most high intensity part of every one played
- Mythics can have their power increased to accommodate for their new found home as late game items

So, how can we smartly incorporate this and shift item ordering around. Most of the existing design already supports this change, most notably the legendary item stacking passive. Every mythic item provides a set X% bonus per Y amount of legendaries held, well, if we are building up an arsenal of legendaries before we purchase an item, this effect is still in full force. We also don't need to adjust the passive itself, each mythic has its own bonuses; tank items typically provide %health, damage items %damage, etc.

Due to mythics essentially being classed by role as tank, damage, utility, etc. The passive is self solving. Want to get a big boost in tankiness late game, choose from the tank mythics. Want to get a boost in damage, choose from the damage mythics. We are retaining all the legendary item build diversity and then providing a select pool of mythics appropriate for the scenario. ALL mythics passives are just as potent as each other and thus we have a much more even playing

field.

Compare this to the current system of mythic first, legendaries second and the possibility of the game not favouring your purchases -> mythic passive are quite high. This change converts mythics from a macro choice to a micro choice, allowing the base system to blossom and mythics to be what they always should have been, side items and closers to builds.

So, shifting from early to late is a good change, but that's not the whole story. Do the mythics themselves need altering and how do we even shift them? We'll start with the hard one first, do the mythics individually need some balancing to account for this? Yes.

Although the passives don't need touching as they are self solving and now better support the existing item system, the remainder of each item will need a shift in power to remain relevant. The first problem we encounter is what actually is 'late game', we've touched on it previously but it's still a loose term. We are going to have to solve both problems at once in order to apply any form of good foundational balance, so, let's implement the shift.

The simplest way and one we have already looked at in great detail is DOTA's neutral item tiering system (set time intervals). Due to League's simplicity and mythics being equal in power we can get away with a single timer at some average "late game" point. Let's say 40 minutes. This might seem a little long, in many cases players won't even get to purchase a mythic.

Good

Mythics are potent and irregardless of any amount of numeric balancing will be trouble at some point or another, not having mythics be part of the equation does two things:

- Legendaries continue to shine even further, just like the prior to season 11
- Mythics are more lucrative, scarcity is physiologically rewarding
 - Rarer = more rewarding
 - Mythics can be made more powerful
 - Average game time can almost be hard capped, big power spikes can bring down the length of the longer games

In those games which exceed 40 minutes every player gets access to mythics and the late game chaos can ensue. At this point the average income is higher so obtaining them becomes even more of a race than the current early game mythic system.

Riot's intense push to make mythics these all powerful all seeing behemoth items which are dumb not to pass up has severely harmed the health of the game since release.

If you recall back to our PoE example we have done the same thing:

- Legendaries are front and centre where they belong, UI ensures this, **not hiding item system**
- Mythics are also not hidden but instead locked, **just like the PoE skill tree**. Not hidden, just needs to be unlocked

Section 6: Item Economy

Virtual economies have the benefit of being far more malleable due to not having real world consequences, however that doesn't make them "easily" malleable. Virtual economies in function are no different to the real world, for example games like RuneScape have an entire virtual market, a market just like the real world. While it is easier to change it can cause havoc if done poorly and must be touched carefully over the course of several patches.

Economy and volatility go hand in hand

So how do MOBA's handle their economies? What defines it? What role and level of importance does it play? And most importantly how does League handle all of this?

Section 6: Active items | DOTA

Active items are a sub category of items which have an ability attached to them. These range from minor to major, typically adjusting with the cost of the item. We once again need to look at DOTA to get a good foundational understanding as well as a correct implementation before we can analyse League's philosophy.

In DOTA, active items are prominent and make up a good majority of all items, including neutral items. From our current understanding of DOTA this may come off as bloated or perhaps overcomplicated in some way. Is having so many active items a problem?

It turns out that active items are a core pillar of DOTA's philosophy and are integral to each and every game for a multitude of reasons. Let's first get an overview of the implementation.

The term passive and active simply means that passive items still have abilities associated with them, but they aren't directly bound to an input, rather a series of conditions. Active items are best thought of as an extra ability, purchasable, expandable hero kits. Because of this actives are greater in strength to passives, subsequently being more expensive. Here is a graph showing the cost of several passive and active items for comparison:

ADD DIAGRAM

This inherent power advantage causes the following:

- Active items are more difficult to design, implement and balance
- Active items are more iconic, popular and potent in more scenarios on average
- Active items are a point of contention among teammates
 - Teamwork X item system
 - Bridges a connection between systems. Potent items are game changers, communicate this power with the team and analyse itemisation deeply
- Active items naturally have a higher importance
- Economy revolves around actives if implemented correctly (DOTA)

The most prominent example of this in DOTA is the BKB (Black King Bar). What makes this item the most iconic, important and most commonly purchased? Simple, BKB grants spell immunity and a basic dispel. In a game of CC like DOTA, being able to NOT be affected by CC and greatly reduce the potency of enemy abilities is an incredible power to have and can easily be a game shifting item. One well timed BKB is all it takes to change the turn of the fight.

FURTHER ELABORATE ON BKB's IMPORTANCE

Section 6: Active items | League

So where does LoL go wrong?

Let's look at the most prominent active item in League, the BKB equivalent, **Zhonya's Hourglass**.

Zhonya's is an item which completely freezes and disables the player from ALL gameplay elements, proving to be highly effective in LoL's fast paced, damage heavy, skill shot forward world (having a 'skill' based ability be ineffective is more potent than a 'point-and-click' ability).

Notice that they are both similar, BKB prevents the enemy from doing something, Zhonya's prevents the enemy from doing something. This is prime active item design. Game changing potency, iconic and skill + knowledge based.

Section 6: Active items | Support active bias | League

In League, the majority of active items are dedicated to the support role. Why? Supports typically have the least amount of stat and effect bonuses from standard items and are intended to be the weakest member of the team in a vacuum. So, to compensate for the lack of what we shall refer to as "power" items, supports are granted more active items to be more versatile and gain capability in a different way.

Let's look at a few active items dedicated to supports to see why this is the case:

The most prominent of these items is the starting items, supports are on the same tier of uniqueness as jungle.

ADD SUPPORT STARTING ITEM

The effect here is that last hitting a minion causes the gold to be shared and contribute to an internal item counter. Upon gaining enough gold the item upgrades itself to provide more benefits and a new active item effect. ADC's are all about hyper farming, typically garnering the most amount of CS per game. Due to this principal, during lane phase (early game) ADC's should ideally take all the farm available in bot lane with the support nearly assisting in lane control and kills.

ITEM NAME alters this dynamic to make the lane phase less one dimensional by adding a sub-game of support based farming, without affecting the ADC's hyper farm principal. Benefiting both players directly, strengthening the support, assisting the ADC, removing frustration, etc.

ADD ANOTHER SUPPORT ITEM

Here we have a late game support item, a mythic to be precise.

In short, supports get an active item bias due to better fit their role and to compensate for their naturally weaker position.

To further this there is a difficulty bias between ADC & support, meaning the average difficulty of a champion in a support role and the role itself is naturally more difficult than its counterpart. Active items make up a great majority of the support role and support players are inherently required to have a better grasp of the item system than the others.

Section 7: Balance

A poor design takes the value out of numerics

The theme throughout has been Riot adopting fundamentals which don't support the game they are trying to create and designing new content which facilitates fun over the ability to balance, not just poor balance in general.

Examples of this are relatively new champions getting mini reworks not long after release either due to low play-rates or too many issues surfacing which could have been avoided from the get go if more thought was put into them and fun didn't come first. How can fun not coming first be a good thing? That's the point of a video game!

// Fix!

Well, how that fun is implemented is what that term truly means. Take some broader examples of different genres, for example:

- FPS (First-Person Shooter) vs RTS (Real-Time Strategy)
- Survival vs Puzzle
- Fighting vs TCG (Trading Card Game)

These genres are wildly different and yet are completely valid to compare going back to the age old saying, "apples & oranges". What does this have to do with Leagues design going for fun over balance, well fun is subjective and is a bi product of, well, **EVERYTHING**.

Fundamentals dictate balance, thus strong fundamentals can provide both fun as well as balance. In modern LoL the problem of designing for fun first has caused countless issues permeating a good majority of the game. Designing for fun first may make the individual element fun however it almost always harms its surroundings, which we have touched on in the specific champion analysis section.

Is Zeri fun? Absolutely, but is Zeri healthy and did she foster a healthy gameplay environment? No. These same questions with the same answers can be applied to the large majority of modern

champions, revealing the simple fact that designing for fun first is not always the correct solution. Frustration and anger are common emotions for many during an average game and such common phrases such as “League sucks” or “I hate this game” aren’t fabricated from nothing.

These modern designs are an irritating addition at best and a major pain point for the entire community at worst. Fun came first and yet on average it’s the last thing on many peoples lists. This even applies to those playing said champions, you would think that playing a design explicitly designed for fun over a solid foundation would be enjoyable, but Riot’s continuous push for these designs produce boring gameplay for many.

Overpowered is only fun for so long, an appealing factor for genre’s such as Roguelikes or ARPG’s. Zeri’s novelty wears off, Bel’veth becomes an uninteresting overburdening character, Nilah brings more of the same but in a slightly different flavour, etc.

This issue is only further worsened by the fact that League is a competitive game, thus frustrations grow stronger and design flaws shine brighter.

So now we understand that a good foundation produces both fun and more importantly controllable balance thus reducing overall frustration, improving game health. So, let’s dive deep into game balance in general and the steps League can take into improving the state of things.

We have touched on certain steps prior with examples such as Pyke’s ult rework and explaining the shortcomings of several designs, through this paper we have learnt that fundamentals dictate the principles of balance and are by far the most important aspect to providing a healthy gameplay experience.

To counter this point briefly, it is valid and preferred to have certain elements be out of balance to foster interest and shift metas. If a game was perfectly balanced would it be fun to play? Yes! However if a game has a small portion more potent than the rest, for example a champion getting buffed to the point of being overpowered is a lot more fun. Unpredictability, variability and surprises garner a more interesting environment. So, being perfectly balanced is NOT what to strive for in a game like League.

Before discussing modern philosophy and subsequently balance issues, let’s go back to the fundamentals to see what balance even is.

Balance has three core pillars:

- Design
- Numerics (values)
- Environment

The first pillar defines the foundation as we have discussed at length so far, every and any aspect regarding balance will always be a product of design. Hence why the majority of balance is dictated by said design.

The second pillar is the numeric changes to a design to fine tune the result, this is where most of the actual balancing takes place and is the primary association with the word. Balance patches for video games released or in development are mostly dominated by numeric changes.

The third and final pillar is environment, by this we are not referring to the environment of the game itself, such as the map, but rather the game as a whole. Metas, playerbase, previous balance patches, itemisation trends, etc. (The map falls under the design category)

LoL specifically adopts a biweekly patch cadence (excluding season transition periods) which produces a great deal of problems:

- Riot are forced to a two week content cadence
- Two weeks may not be enough time for something to be properly analysed
- Can be overwhelming for players
- Can be underwhelming for players

We shall step through these 1 by 1, firstly, a two weeks patch cycle is a tight work schedule for any company. This rapid cycle can and has been adopted into the entire pipeline of Riot's League team, softening the blow of rapid developments natural quality associated problems. However despite this extreme push for optimising a two week development cycle, problems still arise.

Patches are more than just balance changes, they incorporate a set of skins, typically systemic changes are common and recently more significant changes such as mini reworks make their way into the mix. That's a lot to alter in just two weeks, of course things such as skins and mini reworks are planned/developed well in advance, however balance changes are more short term reactive adjustments.

Is two weeks enough time? This is a tough one to answer, for certain aspects absolutely and for certain aspects not at all. This also changes on a patch by patch basis. We can get a better outlook on the situation by observing how the game changes during the transition between seasons. During this transition period there is a one month cadence with more drastic changes involved on all fronts.

This is somewhat of a invalid observation to make due to the environment of the game being so drastically different, but it gives us the closest real world view as to how a slow patch cycle could benefit.

Longer patch cycles simple gives more time for the devs to work, more time for changes to brew and overall less stress for both Riot and the players (two week patch cadence requires more effort on the players end to keep up). The obvious consequence of a longer patch cycle is stagnation and boredom of the player base, however, this is where things get interesting in LoL's case.

DOTA has a unspecified patch cadence, sometimes from weeks to several months with major patches simply come out of the blue, classic Valve time. While this erratic long winded patch cadence sounds like a perfect storm for a restless playerbase, most of the DOTA community is happy with it and only gets restless prior to a major patch or the instances of several months with no changes.

There are many psychological reasons for this:

- DOTA is a more complex game with much more happening in every aspect, thus the game is more inherently engaging if a player can overcome its quirks (Turn rates, hero designs, map quirks, etc.)
- DOTA's playerbase is more mature on average due to said complexity
- DOTA's playerbase is more mature on average due to the art style and slower pace
- DOTA's playerbase is smaller and thus there is less of a community with less diversity (in terms of interest, wishes and woes)
- DOTA players are familiar with the genuine nature of Valve time and thus accept a slow patch cadence
- DOTA makes more significant changes more often despite the slower patch cadence thus making the wait less irritating

LoL is the opposite of this which leads to the two week patch cadence being set in stone. During pre-season (month+ long patch cadence) there are several instances of users complaining about the lack of updates despite the specific purpose of this period to have less frequent updates.

LoL's art style, faster pace, low friction, simple macro scale gameplay leads to a playerbase which has a lower attention span, easier to upset and overall a more needy community due to not being able to handle less consistent change. There is a significant analysis to be had on the social and psychological aspect of League as a video game and how it has impacted mental health in ways outside of stress and anger.

Section 8: Future

How long can League last?

Bloat is defined when the amount of content which alters the meaningful knowledge base becomes too large and begins hindering player experience, particularly those who are newer.

Meaningful knowledge base refers to content worthy of being considered important, let us take another game with content bloat to understand.

Path of Exile is practically the definition of content. Objectively containing the most amount of raw content and individual mechanics from all games of all genres. CHANGE LAST SENTENCE. As a game which is continually updated, how does it combat bloat.

Section 8 | Sub-section 1 | Free content

There are certain pieces of content which do not impact bloat despite ‘bloating’ the amount of raw content in the game. The prime example in PoE’s case is unique items. Uniques are items which have set modifiers, names, art, models and extra miscellaneous aspects.

The free content (*does not bloat*) in League is:

- Cosmetics
 - Including future possibilities such as HUD’s, maps, cursors, etc.
- QOL
 - Season 13 ping changes are an example, more pings BUT more QOL. Net zero

Quite a sparse list. Granted most games fall into roughly a 20/80 split of free vs core however said content is not relevant to gameplay, the first of many red flags.

Section 8 | Sub-section 2 | Core content

Core content is content which impacts the bloat of a game. This can be:

- Mechanics
- Items
- Champions
- Summoner Spells
- Runes

The most notable aspect of this list is that all of these are major gameplay elements. In-fact they are all of the primary pillars of League. This is a consequence of the genre for the most part which only encenuates the problems champion after champion, season after season.

Let’s begin with the most prominent issue, champions. Riot aims for 6 champions a year with one for each lane, with the exception of mid which gets 2. Given our analysis of League’s modern champion design this does not bode well for the long term health of the game and paints a clear picture of the amount of bloat added in a year. Not only is 6 a year problematic at the core level in a pool of 161 total, but it also opens the avenue of a “Bel’veth 2.0”, or “Nilah... again”.

The ratio of competent to incompetent design is in favour of incompetency thriving and slowly choking the foundation of the game away, allowing issues to blossom from every facet each major content release.

There are multiple ways core bloat can be created, neither good or bad designs are void of adding bloat. A modern champion release which was a design success is Vex. While still bloating the game in totality the design itself lead to be easy to understand, concise, well balanced and most importantly fun. Thus several “Vex’s” a year would increase the champion pool size at the same rate BUT slow the rate of bloat increase.

Section 8 | Refactor, rewrite, re-do, revamp | RE-DO PORTIONS

A great way of combatting bloat and one in which many games adopt is to reimplement existing mechanics. The majority of Seasons for LoL consist of doing this, some examples being:

- Season 8: Runes reforged
- Season 10: Drake/Dragon rework (Excellent addition, healthy for the game)
- Season 11: Item rework (Partial bloat reduction, partial bloat inflation)

Runes reforged is straight forward

Season 10 is considered by many to be the best season created yet. The elemental drake changes were incredibly healthy for the game, being vastly superior to the previous system by adding NEEDED complexity while still being simple to understand and engaging.

Season 11 has been touched on and would lead one to believe that it added bloat overall. While true it did also reduce it partially by implementing the recommendation system (although a flawed implementation) CONTINUE SENTENCE

Section 8 | Remove

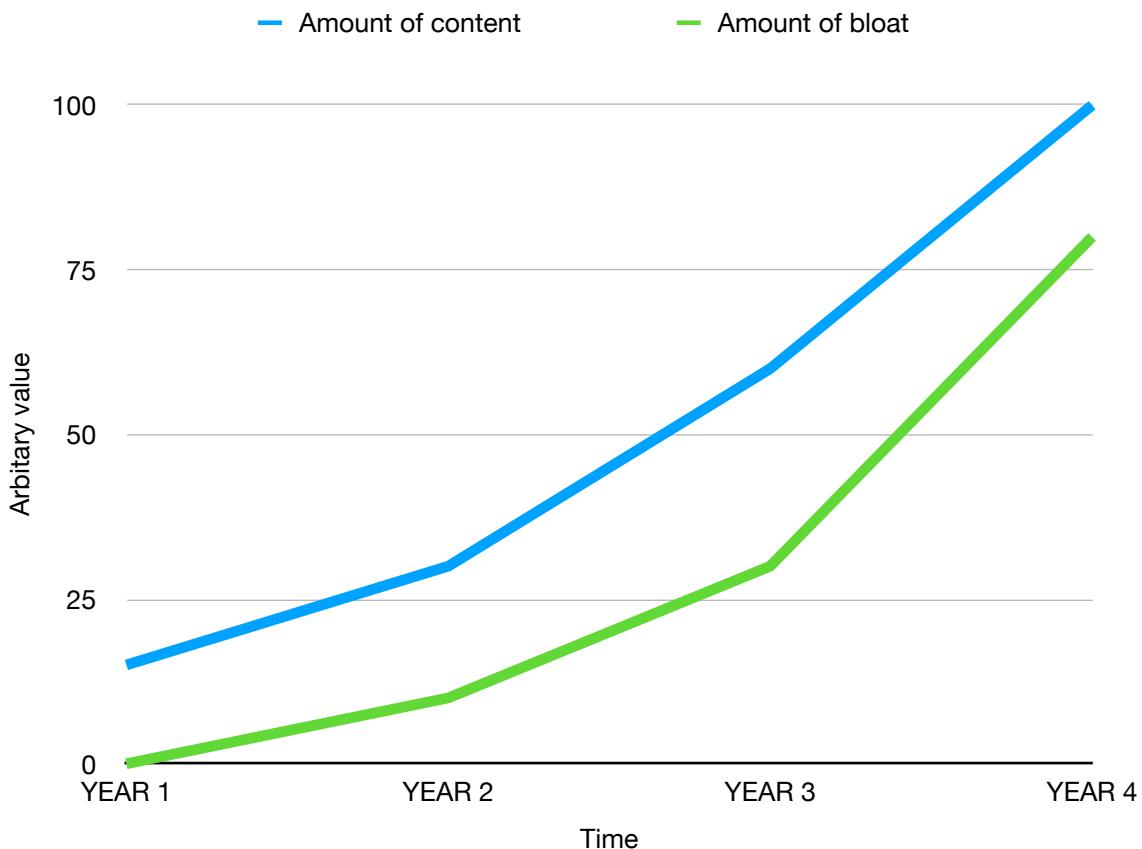
The best way to combat bloat in its purest definition is to simply remove content. PoE has done this on several occasions for the following reasons:

- Content which was removed is typically replaced by a more interesting mechanic
- Content was far too outdated to the point where most simply do not care
- Content was not necessarily bad, but could be unhealthy for the game, hard to engage with, buggy, not fit modern philosophy, etc.

The famous saying of “it’s easy to add but hard to remove” is in full effect when it comes to live service games. While both can be harmful, removal is a far touchier subject especially with a playerbase as large as LoL’s.

VGU champions technically are a form of removal but in a net negative way, while the newer designs are healthier the overall bloat increases. Thus counterintuitively removal isn’t actually a removal of bloat depending on how it is framed and performed.

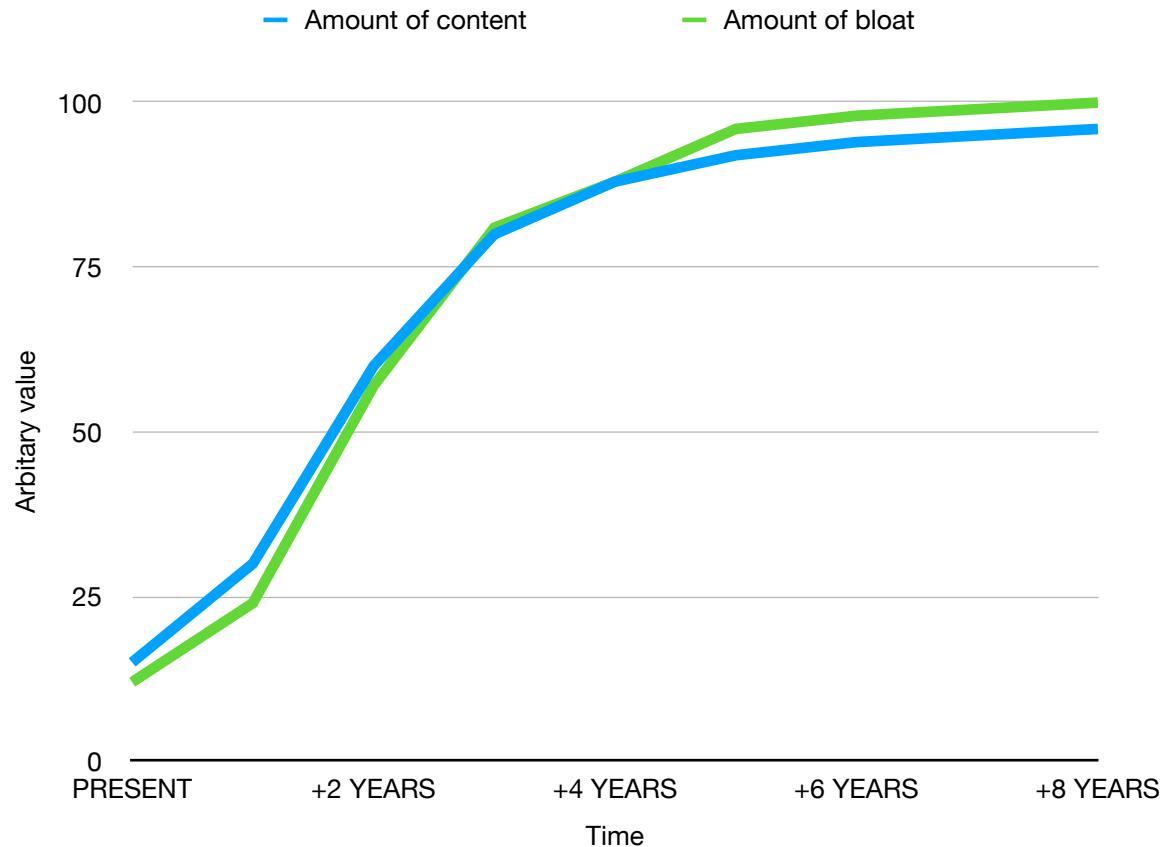
We can generalise things onto an arbitrary graph like so:



In this **ideal general case** the amount of content stays above the amount of bloat. This can be achieved through smart UI/UX, clever intricacies to a design, reworks, improved tutorials, etc. Every live service/consistently updated game should strive for this balance and aim to push the bloat line as low as possible (In a **true perfect case** the bloat line barely moves, GMod modding is an example of this). However it is impossible for the majority of game designs to achieve this ratio. **All active games are subject to bloat being increased as time goes on.** PoE is an example of adding a significant amount of content every 3 months on a game which already has a significant amount of content, thus the bloat is increased generally relative to the amount of content.

League's bloat is increased less in regards to the amount of content in comparison to PoE however there is more to it than face value. The playerbase defines what is content and bloat in the first place, PoE players are deeply invested in complexity IMPROVE

Let's take a look at a generalised graph of League's change over time as well as how it might look in the future:



At some point League will encounter a point where any new content added will result in a roughly 1:1 content to bloat ratio, however, this is the case with the majority of video games. Afterwards any content added will be overtaken by the amount of bloat it adds, negating its impact.

Section 9: Conclusion

Wrapping up

Riot branched away from its grandfather in all the wrong ways, applying patch work since release and slowly driving its success into the ground through poor philosophical choices, broken designs, problematic balancing CONTINUE

League's fast paced gameplay, attractive art style and diverse cast of characters garnered a massive playerbase which it cannot support effectively through its current update model. Two week patch cycles lead to balance which cannot be sustained, a focus on professional/high ranked play causes the majority of the playerbase to be alienated and a general focus on designs which prove to be too potent for the sake of it have butchered a large portion of what once made League a great game.

In order to change this Riot must adopt severe changes both in design and balance to drastically reduce damage, remove a large portion of modern designs as well as refine areas which need it most, such as bases, the jungle or the oldest champions.

VGU's release too slowly, modern champions are typically overloaded for no logical reason and the overall health of the game is too inconsistent along its decline. CHANGE LAST SENTENCE

Section 10: Bonus

Permutations and combinatorics

As a little thought experiment, how many possible games of League are there? To further the scope, how many possibilities are there in general when referring to video games:

- How many Minecraft worlds?
 - How many unique Binding of Isaac runs?
 - How many combinations of Skyrim mods?

The following section will put everything into perspective.

To get a baseline let's look at one of the most classic games out there, Chess. The amount of possible chess games sits at **10^{120}** or in standard notation terms (1 followed by 120 zeroes):

That's quite the value, so large in fact that it's lost any form of meaning to your brain. What this means however is that one can play chess and ensure that the game they play will be different from the last, as the chances of a repeat are so low that for all intensive mathematic purposes, it is 0%.

Even if someone was to do absolutely nothing but play chess 24/7 for their entire lifetime, they would once again for all intensive mathematic purposes have played 0% of all possible chess games. To further this, how many games of chess have you remembered playing? Even if you are an avid player and actively remember games, you don't have the neurological capability to remember ALL of them and will miss out on details.

What this means in reality is that 10^{120} number is actually far greater as you can encounter repeats all the time and not know it.

Where do video games and specifically LoL or DOTA come into play, well let's see what chess has to offer to give it this insane value of possibilities.

Chess consists of 1 board, 2 sides.

LoL consist of 161 champions, 100+ items, 10 players, a large scale map with multiples elements, minion pathing, dynamic events, constant updates, skins, and much more.

Now from that alone we can infer that 10^{120} is looking extra small and that LoL's possible game value is simply incalculable as there is too much variance to mathematically compute. To make matters even more mind melting, magnitudes get a little out of hand and can be difficult to wrap your head around.

10^{121} is significantly larger than 10^{120} even though the exponent has only increased by 1 and 10^{122} makes 10^{120} look almost insignificant.

We can safely assume that LoL is many, many, many, many, many, many orders of magnitude greater than chess possibly into the hundreds: 10^{200} , 10^{300+} , etc.