**Tank Wrecks**  
A Breakdown of the Components of a Satisfactory Shooting Mechanic

This is an essay about the components that compose a satisfactory shooting mechanic in a game, and how they can be applied to Tank Wrecks to improve the core gameplay. The components that compose such a mechanic will be broken down and analyzed, piece by piece.

1. It would be in our interest, before exploring any other subject or concept, to understand the definition of the word *satisfying*, both semantically and within game design.  
   1. The adjective *Satisfying*, according to the Oxford Learner’s Dictionary, is *“giving pleasure because it provides something you need or want”*. Something satisfies us because it provides something needed or wanted. For our purposes, we must emphasize the want part. While we can link an essential action within a game to a satisfactory reward/component, playing a game itself is often more related to desire than necessity. Therefore, the most important part of *satisfying*, especially within our context, is not the essential, but the part we desire and crave.
   2. In game design, the feeling of satisfaction when doing something is very often correlated to the term “Game Juice”. Game Juice is loosely defined as visual, tactile and audible feedback that when combined creates an intangible, often positive, sensation. When done right, this sensation enhances gameplay and increases immersion. It is, therefore, possible to make certain mechanics, such as movement and attacking satisfactory through the use of Game Juice.

Furthermore, with the addition of Game Juice, comes the burden of testing and fine-tuning such. This is commonly done by stripping the game of all of its other aspects, such as graphics, music, level design, points and story, and then testing how the game “feels”.

1. Furthermore, it would be highly relevant and useful to analyze and break down key game juice factors for shooting and explosion mechanics in popular games.  
   1. The most common and perhaps most notable of these game juice effects for shooting and explosions is screen shake. A good example of its use in shooting would be in Nuclear Throne, which utilizes lots of screen shake every time a gun is shot. The shake and impact of the shot should be proportional to the staging and anticipation of the animation leading up to it.  
        
      An additional but important consideration about screen shake is the possibility of inducing motion sickness. Screen shake should always be done using Perlin noise, which is mathematically similar to how our neck compensates for instability and shaking in real life. In summary, this causes screen shake to be less motion sickness inducing; though it should still be used in reasonable doses and intensity.
   2. Another relevant and very common type of game juice is damage indicators; color flashes, changes in animation or audible feedback that the enemy has been hit, or that a shot has been fired. Most modern games utilize a combination of these to create interesting game juice and immerse the player in the impact of his damage and attacks.
   3. An alternative, somewhat less common form of game juice is time dilation. Fighting games commonly employ this strategy to convey the impact and force of hits; the recipient of the damage freezes in time for a split second, or time slows down to allow the player to better visualize the damage. Good examples of this would be street fighter and mortal Kombat; notably fatality cutscenes.
   4. Lastly, we can apply some of the principles of animation as guidelines to develop good game juice. The principles of staging, exaggeration and anticipation, in particular, are very useful to develop interesting and immersive game juices.
2. Now that we understand the concept of satisfaction within games, and how that is often related to the use of game juice, we can analyze how that applies in Tank Wrecks.  
   1. The section of Tank Wrecks that can benefit the most from game juice is shooting. To survive in Tank Wrecks, it is essential for the player to shoot. This process can be rewarding through the use of screen shake, particle, lighting and sound effects.   
        
      Furthermore, the fired projectiles themselves can benefit from game juice. Sound effects and visual effects as the projectiles fly through the air are useful identifiers for incoming fire and improvements to the shooting mechanic.
   2. Another essential part of Tank Wrecks is moving. Through the use of particle, camera shake and sound effects, this can be transformed into a desirable part of gameplay. This further incentivizes moving through the map and actively avoiding shots, as moving itself becomes desirable.
   3. Lastly, we must also analyze the relation between player skill, shot accuracy, success in the game and satisfaction. In the game, the player must account for the enemy’s position and movement to successfully land a shot. Naturally, this is a skill that improves with practice, and its improvement is very much related to the ability to win and survive in the game. The game deliberately lacks any form of aim assistance to make this mechanic primarily skill-based.  
        
      Hence, we can conclude that as player skill improves, so does his success rate at the game, and consequently, so does his satisfaction, as success is usually desired when playing a game. This deliberately creates an indirect correlation between player skill and satisfaction, that can be exploited to motivate and reward play.
3. Therefore, according to the concepts and considerations explained above, we can conclude the following:

* *The satisfactory nature of shooting, among other mechanics, should stem from the usage of game juice to enhance the feel and user experience of the player. Moreover, shooting should be satisfactory because it is highly skill-based, and a critical component to achieving success in the game. Thus, becoming skilled at shooting is highly rewarding.*