Dragon Kill Points: Loot Distribution in MMORPGs

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ABSTRACT

One of the major reasons for playing Massive Multiplayer Online Role Playing Games (MMORPGs) is the possibility to show off your abilities to other players. The more rare your equipment is, the higher is the show off value of your character. And because rare items are hard to find cooperation between several players is often required. This introduces a conflict between the players, and a way to distribute loot is necessary.

We introduce the problem of loot distribution in MMORPG, and we suggest and give a preliminary evaluation of a new and improved Dragon Kill Points system.

1. INTRODUCTION

Massive Multiplayer Online Role Playing Games add a new dimension to game play allowing for social interaction between humans. Recent research has shown, however, that it is not only the act of playing with others that is important, but also the act of showing off one's skills to other players [1, 2]. Being skilled is often referred to as being *elite*. Achieving such *eliteness* happens in two ways. First, it is related to the statistical properties a character gains as its experience increases, the *level* of a character. Second, it is related to the equipment a character possesses. As a character reaches the maximum level, further growth in elitness can only happen through improved equipment. Acquiring even a single new valuable item might, however, require the cooperation between many players, which again introduce a conflict between the players. Who is eligible for the *loot*?

Recent MMORPGs like World of Warcraft (WoW) [3] and Age of Conan [4] have simple ingame mechanisms for dealing with loot distribution. The options typically ranges from *free-for-all* where anyone can pick up loot, to *Master Looter* where one person in the raid is eligible to pick up and distribute all items among the present players. Most players, however, find the ingame loot distribution mechanisms to be inadequate for encounters requiring more than 15 players.

The problem of loot distribution was discovered early by players of EverQuest (EQ) [5]. Originally EQ had two dragon bosses that could only be slayed by a party of many cooperating players. The rewards were, however, few, so to do fair loot distribution the player guild Afterlife came up with the system *Dragon Kill Points* (DKP) in 1999. The basic idea behind DKP is to award players points for attending boss kills. When loot is acquired, the player with the most DKP gets the item in exchange for some or all of this person's DKP. The introduction of this DKP system has later led to a myriad of related systems, and the abbreviation '*DKP*' has become a common label for all of them.

2. REQUIREMENTS AND PITFALLS

It has become a common understanding that building a DKP system is an act of balancing a number of, sometimes conflicting, requirements and avoiding a set of pitfalls. Even if the requirements do differ among communities, there are some important basics.

First of all a DKP system should stimulate players to exchange DKP for loot. If players start passing on small upgrades, saving DKP, to have a better shot at more valuable items later, the whole group might lose valuable upgrades as items are left unwanted. Second, the possibility to give a *bonus* based on certain criteria strengthens most DKP systems. Bonuses are important in order to motivate players to take part in actions that are not immediately favorable to themselves. Furthermore, the *complexity* of a DKP system should be low so it is easy for players to understand, trust, and adopt the system. In addition, one could argue that a DKP system should contain an element of surprise, i.e. there should be some degree of *randomness* in the distribution of loot. This prevents reservation of items, and at the same time retains a degree of excitement. However, from the point of view of some players, the presence of randomness could conflict with the requirement of *fairness*. The perception of fairness does vary among casual and elite players. While elite players is likely to see item reservation and lack of randomness as fair, randomness gives casual players a chance to get quality loot. A DKP system needs to take into consideration the different views of fairness, and try to please both the elite and the casual players.

The most common pitfall with DKP systems is *inflation*, where significantly more DKP points are allowed to enter the system than to leave the system. The consequence is that newcomers and casual players will have a hard time to catch up with the elite players in the DKP race, leaving them with only the items the elite players do not want. Therefore, inflation must be avoided in order to keep a raid incentive

for new and casual players. *Collusion* is the second most common flaw found in DKP systems, and most often occurs in bidding systems. Collusion is price fixing between players through a covert channel during play. This makes it possible for a group of players to agree on a low price on an item, often class-specific, in order to save DKP points for other items later on. The last of the three most common pitfalls is *distortion*. Distortion is caused by class imbalance. Items that are specific to a popular class become more expensive than items specific to an unpopular class due to the difference in demand. Distortion should be avoided, as the class imbalance actually might be needed for some encounters.

The five most common systems in use today are *roll-only*, *bidding*, *fixed price*, *zero sum*, and *ranking list*. Their pros and cons are summarized in figure 1. In a *roll-only* system the distribution of loot is based on the randomness of a dice, where the player with the highest roll receives the item. In a *bidding* system the players interested in an item have to bid with their accumulated DKPs, and the player with the higest bid wins the loot. A *fixed price* system requires the raid leader to price all relevant items in advance. Then loot is distributed to the player with the highest amount of DKPs. In a *zero sum* system the number of points entering and exiting the system is equal. Whenever an item is looted the number of points equal to the items value is deducted from the DKPs of the player that recieves loot. Then the same number of points is split evenly between all players. A *ranking list* system maintains a list of all players, where the player at the top of the list is first in line when loot is distributed. A player that receives loot is moved to the bottom of the list.

3. ROLL DKP, CUT %

The *Roll DKP, cut %* (RDCP) system was introduced by the authors for the WoW guild *Blotslauget* as a DKP system meant to satisfy both regular and casual players, and to motivate the guild members to work for the better of the guild.

The RDCP system imposes no restrictions on how guild members earn DKP. The system rewards players with DKP for in-raid events like killing bosses and for out-of-raid events such as making potions to other raid members. But it is up to the guild to make sure that all members feel that DKP is distributed in a fair way. E.g by rewarding the same level of effort by the same amount of DKP, and by rewarding tedious tasks with some extra DKP.

When an item drops, all interested players toss a dice with the size of each players own DKP. The winner is the one that rolls the highest number. In the case of a tie, the players with the highest rolls reroll. Notice that a player rolling with a dice twice the size of another player, has three times the chance of winning an item.

When a player wins an item, the player loses $p\%$ of DKP. The size of p is given in advance. E.g. p could depend on the quality of the item; 25% for rare items and 50% for epic items, or a more fine grained calculation of p based on various item statistics could be used. Because players lose a percentage of their DKP when winning an item, players with very low DKP will get items for close to free. To avoid "free" loot a *minimum loss* (ML) value should be used. ML is a predefined, minimum amount of DKP that a winning player will lose. Whatever is greatest, the $p\%$ DKP or the ML, will be subtracted from the winning players DKP. The size of

	Stimulate usage	Bonus support	Complexity	Randomness	Fairness	Inflation	Collusion	Distortion
RDCP	+	+	o	+	+	o	+	+
Roll	n/a	n/a	+	+	-	n/a	n/a	n/a
Bidding	-	+	+	-	o	-	-	-
Fixed Price	-	+	o	-	o	-	+	+
Zero Sum	-	-	o	-	o	o	+	+
Ranking List	o	-	+	-	o	n/a	n/a	n/a

'+' = Good, 'o' = Average, '-' = Poor

Figure 1: DKP systems summary.

ML will depend on how the players earn DKP. It should be set high enough to reflect the value of the items won, but still low enough to only come into action for players with low DKP. The introduction of ML implies that a players DKP might drop below zero, therefore a player with negative DKP will not be eligible for more loot until DKP is once again above zero.

4. EVALUATION AND CONCLUSION

A summary of the preliminary evaluation of the RDCP system is given in figure 1. The systems from section 2 have been included for comparison. While RDCP might be the most complex system, the required DKP management could be handled by ingame logics. In all other respects RDCP scores well. The inclusion of randomness together with the $p\%$ DKP cut prevents hoarding and lets the RDCP system balance the treatment of regular and casual players. Furthermore, the use of $p\%$ cut reduce inflation. RDCP also provides support for bonuses, and players can not influence the price of items, thus avoiding the pitfalls of collusion and distortion.

In this paper we have introduced and analysed the problem of loot distribution in MMORPGs. We have identified the basic requirements and the common pitfalls of a loot distribution system. We have also introduced and briefly evaluated the RDCP system, showing that it is the one that is best able to satisfy these requirements, while still avoiding the common pitfalls. Further user studies of the RDCP system remains as future work.

5. REFERENCES

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