



The munchkin dilemma

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As most of you might have already guessed by the title, I am a nerd. As such, a relatively large part of my life was invested in hours of playing video games, reading nerdish stuff and playing tabletop role-playing games (RPGs).

RPGs should not be confused with board games, card games or board wargames. RPGs require players to “create fictional personas (...) within the rules and genre specified by the game, and then collectively engage in protracted storytelling” (Williams *et al.*, 2006). As such, though the dungeon master might give some rules, background information and create a whole world for the players to explore, playing RPGs and creating your character is quite an open experience, where the player can and should use his/her creativity to have as much fun as possible together with the other players.

My experience with RPGs is mostly restricted to the Dungeons & Dragons system (D&D), which is probably the most famous tabletop RPG in the world. It was created in 1974 by Gary Gygax and Dave Arneson and, through the years, had many revisions of the rules, with new editions being published. Literally hundreds of books (Wikipedia, 2014) with new rules and classes were written to expand the ever-growing options for the players and dungeon masters. Also, D&D is remarkably less controversial than Storytelling RPG systems, with fewer parents

blaming D&D for some sort of small disorder their children have, like a tendency to murder goats, summon cosmic horrors or whatever.

On a D&D game, players form a group of adventurers (or party) and embark on a journey for wealth and glory. Inside a world created by the dungeon master, the players are free to explore dungeons, destroy castles, build cities, save princesses and be awesome. Obviously, this never happens, as players inevitably ends up doing stupid actions which usually gets them (and everyone near them) killed; but this is the fun of RPG, probably.

One can divide a typical D&D game in different stages. There are moments when the party is exploring a forest, gathering information in the middle of a big city, furtively invading a well-guarded castle or fighting a horde of beasts. The party, thus, usually have different characters with different roles to fulfill each task (or not, since teamwork usually is not part of the average D&D party). Battles are inevitable and an important mechanics of the game, with whole chapters of the rule books devoted to it. Because of all the above, some players end up reading lots of books to find nice abilities and build a good and useful character. Being a hopeless nerd, of course I’ve done that.

THE MUNCHKIN DILEMMA

Today, I will present what I like to call the “Munchkin Dilemma”.

The word munchkin originated with the famous “The Wonderful Wizard of Oz” novel (often called simply “The Wizard of Oz” on the numerous reprints and the 1939 movie, which, by the way, recently made 75 years), written by Lyman Frank Baum in 1900. Munchkins are the natives of the Munchkin Country, and were originally said to be about Dorothy’s height. On the famous movie adaptation, though, the Munchkin Country was called “Munchkinland”, and the munchkins were depicted as being much shorter than the other Oz residents, being played by either children or adults with dwarfism. The word munchkin ended up entering the English language due to the popularity of the movie, as a reference to small children, dwarfs and anything of small stature, much like the Oompa Loompas.

In RPG jargon, however, munchkin is a pejorative term used to depict the “power player”, meaning the player who tries to make optimized characters, using the many different books to conceive the most efficient, overpowered killing machine instead of a character fun to play with. I guess the reason they are called munchkins is because they play like children, though it would make a lot more sense if it was because they like to play with dwarves. They are despised by the other serious and mature adults who play RPG.

There is a lot of prejudice associated with this term, of course. I expect no one likes making an useless character, but I guess that players that for some reason want to play with monks or bards tend to feel bad when a wizard does their job (much) better, and then they start complaining about not wanting to make a “power” character because they prioritize the

roleplaying part of the game (they should be happy, though, since they are true to the uselessness of their characters). A card game created in 2001, where the player’s objective is to get to a high level while preventing the opposing characters of doing the same, was named Munchkin with the intent of making fun of such playing style (it is a great card game, by the way).

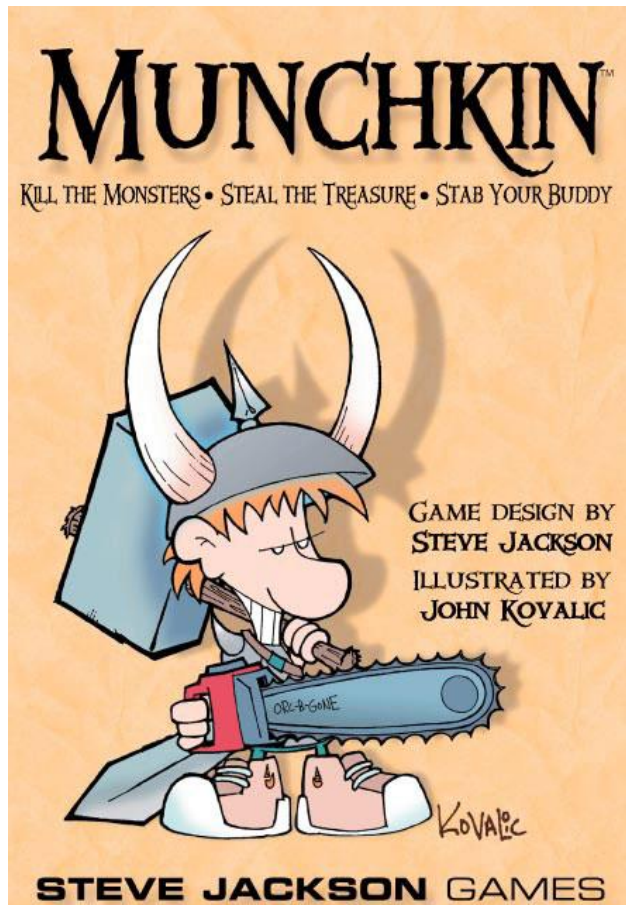


“And my axe!” Art by Todd Lockwood. Image taken from: *Dungeons & Dragons Player’s Handbook* (3.5 ed.).

Though there are many ways one player can be a munchkin, most of the times the munchkin’s objective is simple: to be a damage dealing, powerhouse chucknorresque machine. And to do so, he wants to have the strongest class, with the best configuration of feats and the strongest weapon.

Usually, the best way to do so is with a complex combination of many classes, or with a cleric or wizard. An optimized fighter, for

example, might fight with a spiked chain and use the Improved Trip and Improved Disarm feats to become a very strong, overpowered and forever alone hated fighter.



Cover art of the Munchkin card game, by Steve Jackson Games. Image taken from: <http://www.worldofmunchkin.com/game/>

With all that in mind, I decided to create my own version of the Munchkin Dilemma D&D 3.5 edition, which I will try to answer here. The dilemma is stated as: “Which of the basic classes from the D&D Player’s Handbook v.3.5 (Cook *et al.*, 2003a) is the best melee class when it comes ONLY to one-on-one combat? No multiclassing, no dips, no fancy stuff, just blood, death and violence.”

The dilemma may be rewritten as: “Which class should I take if I want to kick some monster ass?”

SIMULATION PROCESS

In an attempt to answer one of humanity’s most pressing questions, I decided to create characters with the melee classes from the Player’s Handbook, at different levels, with normal progressions (focusing on being strong at 1x1 combat) and equipment that corresponds to their expected treasure. The characters would then be tested against each other to see which one would have the best victory/defeat rate.

The first classes chosen were: Fighter, Barbarian and Ranger. Though the morphed Druid is said to be the strongest melee, it is also: (1) not a usual munchkin class; (2) difficult to simulate because of the many resources (wild shape strategies, such as grappler, trampler and defender; animal companion; spells). So I decided to leave druids for later. At first, I wanted to add the Rogue just to see how well it would fare, but at lower levels he wouldn’t be able to use the keen rapier + telling blow combo and at higher levels he would likely face fortified armors, so it wouldn’t make sense. I added the Monk just for the fun. The Paladin and the Cleric were not chosen at first because they were either too specific against some enemies or way too complicated to simulate. The levels chosen were: 1, 6, 12, 20. Though it makes absolutely no sense to have a level 20 pure melee Fighter with a two-handed sword, I stipulated that there would be no multiclassing for the first experiment. The race for all characters was decided as human, so no one would have any obvious advantage.

The fights are 1x1, with each character starting close to each other (avoiding charges

and strategies of allowing the opponent to attack first and later using full attacks).

The ability scores for each character were decided by using the “Elite Array” distribution suggested on the Dungeon Master’s Guide (Cook *et al.*, 2003b: p. 169). The distribution of the scores is 15, 14, 13, 12, 10, 8 among the abilities, whichever way the player wishes. The abilities and the extra ability points gained on levels 4, 8, 12, 16 and 20 were chosen according to the classes’ strengths. Similarly, the feats were chosen in accordance to the classes’ characteristics. The money for each level was

also taken from the Dungeon Master’s Guide (Cook *et al.*, 2003b: p. 135), with the exception of the 20th level, where a random large amount of money was chosen (usually, a lot of the money at this stage goes to other random stuff not really necessary for battle).

Also, there are different strategies the fighter might have. He can be the typical sword & board user, the two-handed weapon user, or the two weapons user. All three were considered in this study. The stats of each characters, as well as the feats chosen, are displayed on Table 1.

Table 1. Character stats. I decided to leave it small because no one will read it anyway.

Lvl	Fighter&b				Fighter2h				Fighter 2s				Barbarian				Ranger 2s				Monk			
	1	6	12	20	1	6	12	20	1	6	12	20	1	6	12	20	1	6	12	20	1	6	12	20
BAB	1	6	12	20	1	6	12	20	1	6	12	20	1	6	12	20	1	6	12	20	0	4	9	15
Str	15	16	16	18	15	16	18	20	14	14	14	14	15	16	18	20	14	14	14	14	12	12	12	12
Dex	12	12	12	12	12	12	12	12	15	16	17	19	12	12	12	12	15	16	17	19	15	16	17	19
Cons	14	14	16	16	14	14	14	14	13	13	14	14	14	14	14	14	13	13	14	14	14	14	14	14
Int	13	13	13	13	13	13	13	13	12	12	12	12	13	13	13	13	12	12	12	12	8	8	9	9
Wis	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	13	14	14	14
Cha	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	10	10	10	10
HP (nat)	12	50	107	175	12	50	95	155	11	44	95	155	14	57	108	176	9	37	82	134	10	43	82	134
Feats	1	6	12	20	1	6	12	20	1	6	12	20	1	6	12	20	1	6	12	20	1	6	12	20
Human	Weapon focus (bast.)				Weapon focus (greatsword)				Weapon focus (short)				Power Attack				Weapon focus (short)				Weapon Finesse			
1st	Exotic weapon prof. (bast. sword)				Power Attack				Two weapon fighting				Reckless Rage				Weapon Finesse				Imp. Initiative			
3rd	Power Critical				Power Critical				Power attack				Leap Attack				Power attack				Weapon Focus (unarmed)			
6th	Cleave				Quick Draw				Power Critical				Cleave				Power critical				Superior Unarmed Strike			
9th	Imp. Critical				Imp. Critical				Imp. Two weapon fight				Imp. Toughness				Imp. Critical				Snap Kick			
12th	Greater Weapon Spec				Greater Weapon Spec				Imp. Critical				Power Critical				Imp. Toughness				Imp. Toughness			
15th	Melee Weapon Mastery Slashing				Melee Weapon Mastery Slashing				Melee Weapon Mastery Slashing				Greater cleave				Imp. Initiative				Improved			
18th	Iron Will				Iron Will				Iron Will				Imp. Initiative				Extra favoured enemy				Iron Will			
Fighter 1	Combat Expertise				Cleave				Weapon finesse								Stunning fist							
Fighter 2	Power attack				Imp. Initiative				Imp. Initiative												Combat reflexes			
Fighter 4	Weapon spec.				Weapon spec				Weapon spec								Improved Favoured Enemy							
Fighter 6	Imp. Combat Expertise				Prone Attack				Two weapon def												Improved trip			
Fighter 8	Greater Weapon Focus				Greater Weapon Focus				Greater weapon focus								Two weapon Defense							
Fighter 10	Imp. Toughness				Imp. Toughness				Imp. Toughness								Greater Two weapon def							
Fighter 12	Imp. Initiative				Close quarter fighting				Greater weapon spec															
Fighter 14					Close quarter fighting				Combat reflexes				Combat reflexes								Eyes in the back of your head			
Fighter 16					Greater Cleave				Greater Cleave				Greater Two weapon def											
Fighter 18					Greater Fortitude				Greater Fortitude				Dual strike											
Fighter 20					Weapon Supremacy				Weapon Supremacy				Greater two weapon fight											
\$\$	-	13,000	88,000	510,000	-	13,000	88,000	510,000	-	13,000	88,000	510,000	-	13,000	88,000	510,000	-	13,000	88,000	510,000	-	13,000	88,000	510,000

Some considerations and strategies were assumed for the character building (the characters’ detailed information, relevant for combat, can be seen on Table 2–7):

- The sword & board fighter is mainly a defensive character. His strategy consists of not being hit (with the Combat Expertise feat) and using his superior BAB to get some attacks each turn. He will use his money on good shield and armor, decent weapon and

- rings of protection and/or amulets of natural armors. Each turn, if no attacks connect, he will slowly reduce the BAB penalty spent on Combat Expertise;
- The two-handed sword fighter uses power attacks with his great sword, trying to do the most damage possible each turn. His money will be heavily invested on a powerful weapon and strength boosters. If some money remains, he might get a

decent full-plate and a flying shield. Each turn, if no attacks connect, he will slowly reduce the BAB penalty spent on the Power Attack feat;

- The two-weapon fighter uses the “two-weapon fighting” feat tree, and tries to hit

as many attacks as possible each turn. Pretty much all his money will go to his expensive weaponry;

Table 2. Fighter (sword & board).

Fighter s&b			
Lvl	1	Stats 2	Mod
BAB	1		
Str	15	15	2
Dex	12	12	1
Cons	14	14	2
Int	13	13	1
Wis	10	10	0
Cha	8	8	-1
HP	12	\$\$	-
Init	1	Dmg red	-

Fighter s&b			
Lvl	6	Stats 2	Mod
BAB	6		
Str	16	18	4
Dex	12	12	1
Cons	14	14	2
Int	13	13	1
Wis	10	10	0
Cha	8	8	-1
HP	50	\$\$	13,000
Init	1	Dmg red	-

Fighter s&b			
Lvl	12	Stats 2	Mod
BAB	12		
Str	16	18	4
Dex	12	12	1
Cons	16	18	4
Int	13	13	1
Wis	10	10	0
Cha	8	8	-1
HP	131	\$\$	88,000
Init	7	Dmg red	-

Fighter s&b			
Lvl	20	Stats 2	Mod
BAB	20		
Str	18	24	7
Dex	12	12	1
Cons	16	22	6
Int	13	13	1
Wis	10	10	0
Cha	8	8	-1
HP	255	\$\$	510,000
Init	7	Dmg red	-

	To hit	Dmg	No at.
Attack 1	4	1d10+2	1
Crit = 19	4	2d10+4	-
Attack 2	-	-	-
Crit = 19	-	-	-
AC	17		

	To hit	Dmg	No at.
Attack 1	12	1d10+7	2
Crit = 19	16	2d10+12	-
Attack 2	-	-	-
Crit = 19	-	-	-
AC	24		

	To hit	Dmg	No at.
Attack 1	19	1d10+14	4
Crit = 17	23	2d10+24	-
Attack 2	-	-	-
Crit = 19	-	-	-
AC	30		

	To hit	Dmg	No at.
Attack 1	34	1d10+21+1d6	5
Crit = 17	38	3d10+38+1d6	-
Attack 2	-	-	-
Crit = 19	-	-	-
AC	37		

Feats	
Weapon focus (bast.)	
Exotic weapon prof. (bast. Sword)	
Combat Expertise	
Equip	Cost
Bastard Sword	35
Scale mail	50
Heavy wooden shield	7

Feats	
Weapon focus (bast.)	
Exotic weapon prof. (bast. Sword)	
Power Critical	
Weapon spec.	
Imp. Combat Expertise	
Equip	Cost
Bastard Sword +1	2,350
Full plate +1	2,650
Heavy steel shield +1	1,150
Ring of Protection +1	2,000
Gloves of Strength +2	4,000

Feats	
Weapon focus (bast.)	
Exotic weapon prof. (bast. Sword)	
Power Critical	
Weapon spec.	
Imp. Combat Expertise	
Imp. Critical	
Greater Weapon Spec	
Greater Weapon Focus	
Imp. Toughness	
Imp. Initiative	
Equip	Cost
Bastard Sword +1 collision	18,350
Full plate +4	17,650
Heavy steel shield +4	16,150
Ring of Protection +1	2,000
Belt of Battle	12,000
Boots of Speed	12,000
Amulet of Constitution +2	4,000
Gloves of Strength +2	4,000

Feats	
Weapon focus (bast.)	
Exotic weapon prof. (bast. Sword)	
Power Critical	
Weapon spec.	
Imp. Combat Expertise	
Imp. Critical	
Greater Weapon Spec	
Greater Weapon Focus	
Imp. Toughness	
Imp. Initiative	
Weapon supremacy (2nd attack full bonus)	
Equip	Cost
BS +5 collision shok burst	162,350
Full plate +5 heavy fort	101,650
HSS +5 Death Ward Element	100,150
Belt of Battle	12,000
Boots of Speed	12,000
Ring of Protection +5	50,000
Amulet of Constitution +6	36,000
Gloves of Strength +6	36,000

- The barbarian rages as soon as he can and uses the same strategy as the two-handed sword fighter. The Leap Attack feat is pretty much default for the barbarian, so I felt like he needed to have it even though there are no charges in the simulation. His money is better spent on weapons and damage / HP boosters, since there is no point in getting a good light/medium armor for a raging barbarian. He always use maximum points for the full attack no matter what;

- The ranger was a big question mark. I decided right away to ignore the animal

companion and go for the Distracting Attack variant or something, but had some doubts as for the favored enemy, which could turn out to be a bit overpowering for this simulation. I decided that he should have the favored enemy “humanoid (human)” since this is a common choice among players and is an important characteristic of the ranger (not having it would make this class way inferior on this competition). The favored enemies were chosen in order of my preference: arcanist (1st), undead (2nd), human (3rd), construct (4th), elemental (5th). The ranger spells

were replaced by the Champion of the Wild variant from Complete Champion (Stark *et al.*, 2007: p. 50). His money will be spent similarly to the two-weapon fighter;

- Though the monk was included just for fun, I had some problems on creating the character. Since this is an all-out damage battle, I excluded feats of disarming and tripping, which are great (though the monk is never great, thanks to his horrible BAB). So, to make things fair, I used some feats

from the Tome of Battle book, which we usually don't use because of the overpower stuff in there. Since the monk suffers from MAD (Multiple Ability score Dependency; damn, the monk is horrible), his money is spent on items for pretty much all abilities. One good equipment for the monk would be the Monk's Belt, but it takes away the monstrous Belt of Battle. Damn monk, I hate thee.

Table 3. Fighter (two-handed sword).

Fighter 2h			
Lvl	1	Stats 2	Mod
BAB	1		
Str	15	15	2
Dex	12	12	1
Cons	14	14	2
Int	13	13	1
Wis	10	10	0
Cha	8	8	-1
HP	12	\$\$	-
Init	1	Dmg red	-

Fighter 2h			
Lvl	6	Stats 2	Mod
BAB	6		
Str	16	18	4
Dex	12	12	1
Cons	14	14	2
Int	13	13	1
Wis	10	10	0
Cha	8	8	-1
HP	50	\$\$	13,000
Init	5	Dmg red	-

Fighter 2h			
Lvl	12	Stats 2	Mod
BAB	12		
Str	18	22	6
Dex	12	12	1
Cons	14	16	3
Int	13	13	1
Wis	10	10	0
Cha	8	8	-1
HP	119	\$\$	88,000
Init	7	Dmg red	-

Fighter 2h			
Lvl	20	Stats 2	Mod
BAB	20		
Str	20	28	9
Dex	12	12	1
Cons	14	20	5
Int	13	13	1
Wis	10	10	0
Cha	8	8	-1
HP	235	\$\$	510,000
Init	7	Dmg red	-

	To hit	Dmg	No at.
Attack 1	4	2d6+3	1
Crit = 19	4	4d6+6	-
Attack 2	-	-	-
Crit = 19	-	-	-
AC	15		

	To hit	Dmg	No at.
Attack 1	12	2d6+9	2
Crit = 19	16	4d6+16	-
Attack 2	-	-	-
Crit = 19	-	-	-
AC	22		

	To hit	Dmg	No at.
Attack 1	22	2d6+20	4
Crit = 17	26	4d6+36	-
Attack 2	-	-	-
Crit = 19	-	-	-
AC	22		

	To hit	Dmg	No at.
Attack 1	36	3d6+27	5
Crit = 17	40	5d6+50+1d10	-
Attack 2	-	-	-
Crit = 19	-	-	-
AC	30		

Fighter 2h	
Equipment	Cost
Weapon focus (greatsword)	
Power Attack	
Equipment	
Greatsword	50
Scale mail	50

Fighter 2h	
Equipment	Cost
Weapon focus (greatsword)	
Power Attack	
Power Critical	
Imp. Initiative	
Weapon spec	
Equipment	
Greatsword +1	2,350
Full plate +1	2,650
Amulet of Natural Armor +1	2,000
Ring of Protection +1	2,000
Gloves of Strength +2	4,000

Fighter 2h	
Equipment	Cost
Weapon focus (greatsword)	
Power Attack	
Power Critical	
Imp. Initiative	
Weapon spec	
Imp. Critical	
Greater Weapon Spec	
Greater Weapon Focus	
Imp. Toughness	
Equipment	
Greatsword +2 collision	32,350
Full plate +1	2,650
Amulet of Natural Armor +1	2,000
Ring of Protection +1	2,000
Belt of Battle	12,000
Boots of Speed	12,000
Amult of Constitution +2	4,000
Gloves of Strength +4	16,000

Fighter 2h	
Equipment	Cost
Weapon focus (greatsword)	
Power Attack	
Power Critical	
Imp. Initiative	
Weapon spec	
Imp. Critical	
Greater Weapon Spec	
Greater Weapon Focus	
Imp. Toughness	
Weapon Supremacy	
Equipment	
GS +5 collis shok burst magebane	200,350
Full plate +5 heavy fort	101,650
Belt of Battle	12,000
Boots of Speed	12,000
Ring of Protection +5	50,000
Amult of Constitution +6	36,000
Tome of Strength +2	55,000
Gloves of Strength +6	36,000

SIMULATION VS. ANALYTICAL ANALYSIS

I decided to use a simulation method instead of analytically solving probability equations, because doing it analytically takes an absurd amount of time, since the number of combinations are enormous. To exemplify, I tried to make the Barbarian vs. Fighter (two swords) level 1 fight analytically. The terrible result is shown on Tables 8–11. The problem is

that each attack has three possible outcomes (hit, miss or critical), the two-swords fighter, for instance, generate 2 to the third power possible outcomes with each attack. When considering more attacks and more health points, the number of combinations grow considerably. Imagine a fight of a level 20 monk against a level 20 ranger: the monk's 7 attacks and the ranger's 8 all have three possible outcomes. Considering

the total HP, it is possible for the ranger to hit the monk 11 times without defeating him, while the monk can hit the ranger 14 times without defeating him. After the fighter's second attack, I decided to extrapolate the results previously

found to the remaining rounds. I believe I got close enough to the answer, but it took some effort. Thus, the barbarian defeats the two-swords fighter more than 4 out of 5 times.

Table 4. Fighter (two swords).

Fighter 2s			
Lvl	1	Stats 2	Mod
BAB	1		
Str	14	14	2
Dex	15	15	2
Cons	13	13	1
Int	12	12	1
Wis	10	10	0
Cha	8	8	-1
HP	11	\$\$	-
Init	2	Dmg red	-

Fighter 2s			
Lvl	6	Stats 2	Mod
BAB	6		
Str	14	14	2
Dex	16	18	4
Cons	13	13	1
Int	12	12	1
Wis	10	10	0
Cha	8	8	-1
HP	44	\$\$	13,000
Init	8	Dmg red	-

Fighter 2s			
Lvl	12	Stats 2	Mod
BAB	12		
Str	14	16	3
Dex	17	21	5
Cons	14	16	3
Int	12	12	1
Wis	10	10	0
Cha	8	8	-1
HP	119	\$\$	88,000
Init	11	Dmg red	-

Fighter 2s			
Lvl	20	Stats 2	Mod
BAB	20		
Str	14	20	5
Dex	19	25	7
Cons	14	20	5
Int	12	12	1
Wis	10	10	0
Cha	8	8	-1
HP	235	\$\$	510,000
Init	13	Dmg red	-

	To hit	Dmg	No at.
Attack 1	2	1d6+2	1
Crit = 19	2	2d6+4	-
Attack 2	2	1d6+1	1
Crit = 19	2	2d6+2	-
AC	16		

	To hit	Dmg	No at.
Attack 1	10	1d6+5	2
Crit = 19	14	2d6+8	-
Attack 2	10	1d6+4	1
Crit = 19	14	2d6+6	-
AC	21		

	To hit	Dmg	No at.
Attack 1	18	1d6+13	4
Crit = 17	22	2d6+22	-
Attack 2	18	2d6+6	2
Crit = 17	22	3d6+8	-
AC	24		

	To hit	Dmg	No at.
Attack 1	32	2d6+19	5
Crit = 17	36	3d6+34	-
Attack 2	32	2d6+16	3
Crit = 17	36	3d6+28	-
AC	35		

Feats	
Weapon focus (short)	
Two weapon fighting	
Weapon finesse	
Equip	Cost
Short sword	35
Short sword	35
Scale mail	50

Feats	
Weapon focus (short)	
Two weapon fighting	
Weapon finesse	
Power Critical	
Weapon spec	
Two weapon def	
Imp. Initiative	
Equip	Cost
Short sword +1	2,350
Short sword +1	2,350
Mithral Chainshirt +1	2,100
Ring of Protection +1	2,000
Gloves of Dexterity +2	4,000

Feats	
Weapon focus (short)	
Two weapon fighting	
Weapon finesse	
Power Critical	
Weapon spec	
Two weapon def	
Imp. Initiative	
Imp. Two weapon fight	
Imp. Critical	
Greater weapon focus	
Imp. Toughness	
Greater weapon spec	
Equip	Cost
Short sword +1 collision	18,350
Short sword +1 ice	8,350
Mithral Chainshirt +3	10,100
Ring of Protection +1	2,000
Belt of Battle	12,000
Boots of Speed	12,000
Amult of Constitution +2	4,000
Bracers of Strength +2	4,000
Gloves of dex +4	16,000

Feats	
Weapon focus (short)	
Two weapon fighting	
Weapon finesse	
Power Critical	
Weapon spec	
Two weapon def	
Imp. Initiative	
Imp. Two weapon fight	
Imp. Critical	
Greater weapon focus	
Imp. Toughness	
Greater weapon spec	
Greater Two weapon def	
Dual strike	
Greater two weapon fight	
Equip	Cost
Short sword +5 collision flame	128,350
Short sword +5 collision ice	128,350
Padded armor +5	25,000
Ring of Protection +5	50,000
Belt of Battle	12,000
Boots of Speed	12,000
Amult of Constitution +6	36,000
Animated Shield +5	49,000
Gloves of dex +6	36,000
Gloves of Strength +6	36,000

RESULTS

In this section, I will present the results of the simulation (which was made in VBA), as well as some considerations regarding critical aspects of D&D combat. For each fight, I will present what was the winning percentage of each build, the average percentage of remaining Health Points of the winner, the average number of rounds it took for the winner to defeat the opponent, and how many times the winning party had the initiative of the fight. Each table

shows the result of a build against each of the other builds. The information shown are:

- Number of victories and percentage of victories: out of 1000 fights, how many were won by each build;
- Remaining HP and percentage of remaining HP: on average, how much HP this class had left in the fights it won;
- Average number of rounds: on average, how many rounds it took for this class to win the fights it won;

Table 5. Barbarian (with rage, +6 level 1 and 6, +8 level 12, +10 level 20).

Barbarian			
Lvl	1	Stats 2	Mod
BAB	1		
Str	15	21	5
Dex	12	12	1
Cons	14	20	5
Int	13	13	1
Wis	10	10	0
Cha	8	8	-1
HP	17	\$\$	-
Init	1	Dmg red	-

Barbarian			
Lvl	6	Stats 2	Mod
BAB	6		
Str	16	24	7
Dex	12	12	1
Cons	14	20	5
Int	13	13	1
Wis	10	10	0
Cha	8	8	-1
HP	75	\$\$	13,000
Init	5	Dmg red	-

Barbarian			
Lvl	12	Stats 2	Mod
BAB	12		
Str	18	30	10
Dex	12	12	1
Cons	14	24	7
Int	13	13	1
Wis	10	10	0
Cha	8	8	-1
HP	180	\$\$	88,000
Init	7	Dmg red	2

Barbarian			
Lvl	20	Stats 2	Mod
BAB	20		
Str	20	40	15
Dex	12	12	1
Cons	14	30	10
Int	13	13	1
Wis	10	10	0
Cha	8	8	-1
HP	356	\$\$	510,000
Init	7	Dmg red	5

	To hit	Dmg	No at.
Attack 1	6	2d6+7	1
Crit = 19	6	4d6+14	-
Attack 2	-	-	-
Crit = 19	-	-	-
AC	11		

	To hit	Dmg	No at.
Attack 1	14	2d6+11	2
Crit = 19	14	4d6+22	-
Attack 2	-	-	-
Crit = 19	-	-	-
AC	15		

	To hit	Dmg	No at.
Attack 1	23	2d6+21	4
Crit = 17	27	4d6+42	-
Attack 2	-	-	-
Crit = 19	-	-	-
AC	16		

	To hit	Dmg	No at.
Attack 1	40	3d6+32	5
Crit = 17	44	5d6+64+1d10	-
Attack 2	-	-	-
Crit = 19	-	-	-
AC	16		

Feats	
Power Attack	
Reckless Rage	
Leap Attack	
Cleave	
Imp. Toughness	
Power Critical	
Greater Rage	
Damage Reduction 2/-	
Equip	Cost
Greatsword +1	2,350
Breastplate +1	1,150
Amulet of Natural Armor +1	2,000
Ring of Protection +1	2,000
Gloves of Strength +2	4,000

Feats	
Power Attack	
Reckless Rage	
Leap Attack	
Cleave	
Imp. Toughness	
Power Critical	
Greater Rage	
Damage Reduction 5/-	
Imp. Initiative	
Mighty Rage	
Equip	Cost
Greatsword +1 keen collision	32,350
Breastplate +2	4,150
Amulet of Natural Armor +1	2,000
Ring of Protection +1	2,000
Belt of Battle	12,000
Boots of Speed	12,000
Amult of Constitution +2	4,000
Gloves of Strength +4	16,000

Feats	
Power Attack	
Reckless Rage	
Leap Attack	
Cleave	
Imp. Toughness	
Power Critical	
Greater Rage	
Damage Reduction 5/-	
Imp. Initiative	
Mighty Rage	
Equip	Cost
GS +5 collis shok burst keen	200,350
Mithral Full plate +4 heavy fort	92,650
Belt of Battle	12,000
Boots of Speed	12,000
Amult of Constitution +6	36,000
Tom of Strength +4	110,000
Gloves of Strength +6	36,000

- Initiatives won and percentage of initiatives: out of 1000 fights, how many had this build winning the initiative roll;
- Winning with initiative: how many fights this build won AND had the initiative.

Also, henceforth, the sword & board Fighter, the two-handed sword Fighter and the two-weapons Fighter shall be called, respectively, S&B Fighter, THS Fighter and TW Fighter.

LEVEL 1

On level 1, it is possible to see that the Barbarian had little trouble dominating all the other builds, with winning percentages higher than 70% against any opponent and an average of less than two rounds to finish a combat. This result is not unexpected, since the Barbarian acquires the very strong Rage ability on level 1. The Ranger and the Monk, on the other hand, performed poorly against all the opponents, and

had a technical draw when faced against each other. This result also is not unexpected, since both classes have low hitting rates at the first level – the Monk’s flurry of blows is still underdeveloped and the Ranger does not yet acquired his first Combat Style class ability (two-weapon fighting).

In the middle of the pack are the three fighter builds. The S&B Fighter, with his high armor class, managed to defeat the TW Fighter and the THS Fighter, while the TW Fighter defeated the THS Fighter. The three fights were relatively close. Table 11 shows the detailed results of the fights.

Also, it is interesting to compare the results of the simulation with the ones calculated analytically on the first part. It was calculated that the Barbarian would defeat the TW Fighter more than 80% of the time, while in the simulation, it is seen that the Barbarian would

win around 70% of the time. This difference shows that some of the simplifications adopted in the first part were probably incorrect.

Table 12 shows some averages and consolidated results. It is interesting to see how

having the initiative impacts the outcome of the fights. The Ranger and the Monk had most of their wins when they had the initiative, while the Barbarian had a very low number of defeats when having the initiative.

Table 6. Ranger, two swords (favored enemy human: +2 lvl 12, +4 lvl 20).

Ranger 2s			
Lvl	1	Stats 2	Mod
BAB	1		
Str	14	14	2
Dex	15	15	2
Cons	13	13	1
Int	12	12	1
Wis	10	10	0
Cha	8	8	-1
HP	9	\$\$	-
Init	2	Dmg red	-

Ranger 2s			
Lvl	6	Stats 2	Mod
BAB	6		
Str	14	14	2
Dex	16	18	4
Cons	13	13	1
Int	12	12	1
Wis	10	10	0
Cha	8	8	-1
HP	37	\$\$	13,000
Init	4	Dmg red	-

Ranger 2s			
Lvl	12	Stats 2	Mod
BAB	12		
Str	14	16	3
Dex	17	21	5
Cons	14	16	3
Int	12	12	1
Wis	10	10	0
Cha	8	8	-1
HP	106	\$\$	88,000
Init	7	Dmg red	-

Ranger 2s			
Lvl	20	Stats 2	Mod
BAB	20		
Str	14	20	5
Dex	19	26	8
Cons	14	20	5
Int	12	12	1
Wis	10	10	0
Cha	8	8	-1
HP	214	\$\$	510,000
Init	14	Dmg red	-

	To hit	Dmg	No at.
Attack 1	0	1d6+2	1
Crit = 19	0	2d6+4	-
Attack 2	-4	1d6+1	1
Crit = 19	-4	2d6+2	-
AC	16		

	To hit	Dmg	No at.
Attack 1	10	1d6+3	2
Crit = 19	14	2d6+6	-
Attack 2	10	1d6+2	2
Crit = 19	14	2d6+4	-
AC	20		

	To hit	Dmg	No at.
Attack 1	17	1d6+14	4
Crit = 17	21	2d6+23	-
Attack 2	17	2d6+7	3
Crit = 17	21	3d6+9	-
AC	24		

	To hit	Dmg	No at.
Attack 1	32	2d6+22	5
Crit = 17	36	3d6+37	-
Attack 2	32	2d6+19	3
Crit = 17	36	3d6+31	-
AC	34		

Feats	
Weapon focus (short)	
Weapon Finesse	
1st fav enemy (arcanist) +2	
Equip	Cost
Short sword	35
Short sword	35
Scale mail	50

Feats	
Weapon focus (short)	
Weapon Finesse	
1st fav enemy (arcanist) +4	
Power attack	
Power critical	
Improved Favoured Enemy	
Imp. Initiative	
2nd fav enemy (undead) +2	
Combat style TWF	
Improved combat style Improved TWF	
Equip	Cost
Short sword +1	2,350
Short sword +1	2,350
Mithral Chainshirt +1	2,100
Ring of Protection +1	2,000
Gloves of Dexterity +2	4,000

Feats	
Weapon focus (short)	
Weapon Finesse	
1st fav enemy (arcanist) +4	
Power attack	
Power critical	
Improved Favoured Enemy	
Imp. Initiative	
2nd fav enemy (undead) +4	
Combat style TWF	
Improved combat style Improved TWF	
Imp. Critical	
Imp. Toughness	
Two weapon Defense	
Greater Two weapon def	
3rd fav enemy (human) +2	
Combat style mastery Greater TWF	
Equip	Cost
Short sword +1 collision	18,350
Short sword +1 ice	8,350
Mithral Chainshirt +3	10,100
Ring of Protection +1	2,000
Belt of Battle	12,000
Boots of Speed	12,000
Amult of Constitution +2	4,000
Bracers of Strength + 2	4,000
Gloves of dex +4	16,000

Feats	
Weapon focus (short)	
Weapon Finesse	
1st fav enemy (arcanist) +4	
Power attack	
Power critical	
Improved Favoured Enemy	
Imp. Initiative	
2nd fav enemy (undead) +4	
Combat style TWF	
Improved combat style Improved TWF	
Imp. Critical	
Imp. Toughness	
Two weapon Defense	
Greater Two weapon def	
3rd fav enemy (human) +4	
Combat style mastery Greater TWF	
Imp. Initiative	
Extra favoured enemy (evil outsider) +2	
4th favoured enemy (constructs) +4	
5th favoured enemy (elemental) +2	
Equip	Cost
Short sword +5 collision flame	128,350
Short sword +5 collision ice	128,350
Padded armor +5	25,000
Ring of Protection +4	32,000
Belt of Battle	12,000
Boots of Speed	12,000
Amult of Constitution +6	36,000
Animated Shield +4	36,000
Gloves of dex +6	36,000
Gloves of Strength +6	36,000
Tome of dex +1	27,500

LEVEL 6

On level 6, once again the Barbarian defeated all the opponents. This time, though, he had a much harder time against all the Fighters, and the THS Fighter in particular. By level 6, the Fighter builds gained a lot of feats, mainly the Weapon Specialization, Power Attack, Power Critical and Improved Initiative ones, which made them considerably stronger.

The S&B Fighter and the THS Fighter did very well against the other classes, and had a technical draw when they fought against each other.

The Ranger and the Monk, on the other hand, dragged terribly behind the other classes. The Ranger's strongest resource in a fight lies with her Favored Enemy ability and, for this simulation, this ability is only acquired against

humanoid (humans) on level 12. The Monk suffers because of his lower Base Attack Bonus; by level 6, all the other classes have acquired

their second attack, while the monk still has only one (without considering the flurry of blows). The detailed results can be seen on Table 13.

Table 7. Monk (considering 100% flurry of blows and Snap Kick on level 20).

Monk			
Lvl	1	Stats 2	Mod
BAB	-2		
Str	12	12	1
Dex	15	15	2
Cons	14	14	2
Int	8	8	-1
Wis	13	13	1
Cha	10	10	0
HP	10	\$\$	-
Init	2	Dmg red	-

Monk			
Lvl	6	Stats 2	Mod
BAB	3		
Str	12	12	1
Dex	16	18	4
Cons	14	14	2
Int	8	8	-1
Wis	14	14	2
Cha	10	10	0
HP	43	\$\$	13,000
Init	8	Dmg red	-

Monk			
Lvl	12	Stats 2	Mod
BAB	9		
Str	12	14	2
Dex	17	21	5
Cons	14	16	3
Int	9	9	0
Wis	14	16	3
Cha	10	10	0
HP	106	\$\$	88,000
Init	9	Dmg red	-

Monk			
Lvl	20	Stats 2	Mod
BAB	13		
Str	12	20	5
Dex	19	26	8
Cons	14	20	5
Int	9	9	0
Wis	14	20	5
Cha	10	10	0
HP	214	\$\$	510,000
Init	14	Dmg red	-

	To hit	Dmg	No at.
Attack 1	0	1d6+1	2
Crit = 19	0	2d6+2	-
Attack 2	-	-	-
Crit = 19	-	-	-
AC	14		

	To hit	Dmg	No at.
Attack 1	9	1d10+2	2
Crit = 19	13	2d10+4	-
Attack 2	-	-	-
Crit = 19	-	-	-
AC	19		

	To hit	Dmg	No at.
Attack 1	16	4d8+8	4+1
Crit = 19	16	8d8+16	-
Attack 2	-	-	-
Crit = 19	-	-	-
AC	24		

	To hit	Dmg	No at.
Attack 1	27	4d8+15+1d6	6+1
Crit = 19	27	8d8+30+1d6	-
Attack 2	-	-	-
Crit = 19	-	-	-
AC	37		

Feats	
Weapon Finesse	
Imp. Initiative	
Unarmed Strike	
Flurry of blows	
Stunning Fist	
Weapon Focus (unarmed)	
Superior Unarmed Strike	
Equip	Cost
Bracers of Armor +2	4,000
Gloves of dex +2	4,000
Necklace of Natural attacks +1	2,000

Feats	
Weapon Finesse	
Imp. Initiative	
Unarmed Strike	
Flurry of blows	
Stunning Fist	
Weapon Focus (unarmed)	
Superior Unarmed Strike	
Improved Natural Attack	
Imp. Toughness	
Greater Flurry	
Equip	Cost
Bracers of Armor +4	16,000
Gloves of dex +4	16,000
NNA+1 collision	18,000
Tiara of Wisdom +2	4,000
Monks belt	13,000
Boots of Speed	12,000
Amult of Constitution +2	4,000
Something of Strength +2	12,000

Feats	
Weapon Finesse	
Imp. Initiative	
Unarmed Strike	
Flurry of blows	
Stunning Fist	
Weapon Focus (unarmed)	
Superior Unarmed Strike	
Improved Natural Attack	
Imp. Toughness	
Greater Flurry	
Snap Kick	
Equip	Cost
Bracers of Armor +7	49,000
NNA+5 collision element	128,000
Ring of Protection +3	18,000
Belt of Battle	12,000
Boots of Speed	12,000
Amult of Constitution +6	36,000
Tiara of Wisdom +6	36,000
Gloves of dex +6	36,000
Gloves of Strength +6	36,000
Tome of str +2	55,000
Tome of dex +3	82,500

Table 8. Combat data.

Initiative		
	Fstart	Bstart
1	1	19
2	3	17
3	4	16
4	5	15
5	6	14
6	7	13
7	8	12
8	9	11
9	10	10
10	11	9
11	12	8
12	13	7
13	14	6
14	15	5
15	16	4
16	17	3
17	18	2
18	19	1
19	19	1
20	20	0
400	227	173
	56.75%	43.25%

Fighter hit	bab	ac	
	2	11	
1st att	2nd att	n combin	outcome
1	1 to 20	20	miss 2
2 to 8	1 to 8	56	miss 2
2 to 8	9 to 18	70	miss r + hit l
2 to 8	19 to 20	14	miss r + crit l
9 to 18	1 to 8	80	hit r + miss l
9 to 18	9 to 18	100	hit 2
9 to 18	19 to 20	20	hit r + crit l
19 to 20	1 to 8	16	crit r + miss l
19 to 20	9 to 18	20	crit r + hit l
19 to 20	19 to 20	4	crit 2
Confirm critical			
conf crit	9 a 20	12	60.0%
no conf crit	1 a 8	8	40.0%
Total outcomes			
outcome	comb	%	
miss 2	76	19.0%	
hit r miss l	86.4	21.6%	
miss r hit l	75.6	18.9%	
crit r miss l	9.6	2.4%	
miss r crit l	8.4	2.1%	
crit r hit l	12.8	3.2%	
hit r crit l	12.8	3.2%	
hit 2	116.96	29.2%	
crit 2	1.44	0.4%	
		100.0%	

Barbarian	bab	ac	
	5	16	
1st	Comb	outcome	
1 to 10	10	miss	
11 to 18	8	hit	
19 to 20	2	crit	
Confirm critical			
conf crit	11 to 20	10	50.0%
no conf crit	1 to 10	10	50.0%
Total outcomes			
Miss 1	50.0%		
Hit 1	45.0%		
Crit 1	5.0%		
Brb HP	17	Fgt HP	11
Brb dmg	2d6+9	Fgt dmg r	1d6+2
Brb crt dmg	4d6+18	Fgt crt dmg r	2d6+4
		Fgt dmg l	1d6+1
		Fgt crt dmg l	2d6+2

2d6 possible results			3d6 possible results			4d6 possible results		
2	1	3%	3	1	0%	4	1	0%
3	2	6%	4	3	1%	5	4	0%
4	3	8%	5	6	3%	6	10	1%
5	4	11%	6	10	5%	7	20	2%
6	5	14%	7	15	7%	8	35	3%
7	6	17%	8	21	10%	9	56	4%
8	5	14%	9	25	12%	10	80	6%
9	4	11%	10	27	13%	11	104	8%
10	3	8%	11	27	13%	12	125	10%
11	2	6%	12	25	12%	13	140	11%
12	1	3%	13	21	10%	14	146	11%
			14	15	7%	15	140	11%
			15	10	5%	16	125	10%
			16	6	3%	17	104	8%
			17	3	1%	18	80	6%
			18	1	0%	19	56	4%
						20	35	3%
						21	20	2%
						22	10	1%
						23	4	0%
						24	1	0%

Table 9. Battle begins. Notice how each branch where the fighter survives after a barbarian attack results in other 8 branches, with 8 possible fighter outcomes.

		Fighter 1st attack							
Branch 0	Fgt starts 56.75%	Branch 1	F ms 2	19.0%	Brb stand	100%	becomes same probability as barbarian starting		
					Brb falls	0%			
		Branch 2	F ht r ms l	21.6%	Brb stand	100%	brb attacks	fgt stands	50.0%
					Brb falls	0%		fgt falls	50.0%
		Branch 3	F ms r ht l	18.9%	Brb stand	100%	brb attacks	fgt stands	50.0%
					Brb falls	0%		fgt falls	50.0%
		Branch 4	F crt r ms l	2.4%	Brb stand	100%	brb attacks	fgt stands	50.0%
					Brb falls	0%		fgt falls	50.0%
		Branch 5	F ms r crt l	2.1%	Brb stand	100%	brb attacks	fgt stands	50.0%
			Brb falls	0%		fgt falls	50.0%		
		Branch 6	F ht 2	29.2%	Brb stand	100%	brb attacks	fgt stands	50.0%
					Brb falls	0%		fgt falls	50.0%
		Branch 7	F crt r ht l	3.2%	Brb stand	63%	brb attacks	fgt stands	50.0%
					Brb falls	38%	fgt wins	fgt falls	50.0%
		Branch 8	F ht r crt l	3.2%	Brb stand	74%	brb attacks	fgt stands	50.0%
					Brb falls	26%	fgt wins	fgt falls	50.0%
			F crt 2	0.4%	Brb stand	16%	brb attacks	fgt stands	50.0%
					Brb falls	84%	fgt wins	fgt falls	50.0%
							Fgt wins	1.32%	
							Brb wins	22.3%	
Branch 200	Brb starts 43.25%	Branch 201	Brb ms	50.0%	Fgt stand	100%	fgt attacks, becomes same as Branch 0		
					Fgt falls	0%			
		Branch 202	Brb ht 1	45.0%	Fgt stand	0%	Brb wins	19%	
		Branch 203	Brb crt 1	5.0%	Fgt stand	0%	Brb wins	2%	
					Fgt falls	100%			

Table 14 shows again some averages and consolidated results. Compared to the level 1 combats, the ones on level 6 took much longer due to the increase in Health Points, without much damage dealing improvement (which usually comes with stronger equipment at higher levels). The builds that did better at level 6 were the ones that were capable of consistently dealing high damage with few attacks (THS Fighter and Barbarian), instead of many, easier-to-miss attacks and low damage.

Once again, the initiative had a lot of impact on the results of the fights. The only outlier would be the Ranger who won most of her fights without the initiative (though most of them were against the monk).

LEVEL 12

On level 12, once more the Barbarian defeated all opponents without much trouble. Most of the merit can be given to a much higher number of Health Points, and mainly to the much higher damage output per round of the build (Greater Rage, Gloves of Strength +4, Collision Weapon, Boots of Speed), which reduced his average number of rounds to finish a combat to less than two. In fact, at this stage the equipment starts playing a much larger role on the combats, allowing all classes to finish their fights in a much shorter time.

The Ranger, once again, struggles to win even a small number of fights. The favored enemy ability is still underdeveloped and the two weapons are very expensive to upgrade. For this reason, the TW Fighter also does very poorly on this scenario where equipment is so relevant.

Table 10. Fighter's second attack.

Fighter 2nd attack		Fighter 2nd attack				Fighter 2nd attack				Fighter 2nd attack				Fighter 2nd attack				Fighter 2nd attack				Fighter 2nd attack				Fighter 2nd attack				Fighter 2nd attack				Fighter 2nd attack																					
Br 1	6.13%	Fms 2	19.0%	Brb stand	100%	same probability as barbarian starting, repeating Br 1 if fails								Br 3	0.68%	Fms 2	19.0%	Brb stand	100%	same probability as barbarian starting, repeating Br 3 if fails								Br 2	5.36%	Fms 2	19.0%	Brb stand	100%	same probability as barbarian starting, repeating Br 2 if fails								Br 4	0.60%	Fms 2	19.0%	Brb stand	100%	same probability as barbarian starting, repeating Br 4 if fails							
Fighter 2nd		Brb falls	0%		0%	brb attacks	fgt stands	50.0%	F wins	0.00%	Fighter 2nd		Brb falls	0%		0%	brb attacks	fgt stands	50.0%	F wins	0.07%	Fighter 2nd		Brb falls	0%		0%	brb attacks	fgt stands	50.0%	F wins	0.00%	Fighter 2nd		Brb falls	0%		0%	brb attacks	fgt stands	50.0%	F wins	0.03%												
Br 09	Fht r msl	21.6%	Brb stand	100%	0%	brb attacks	fgt stands	50.0%	F wins	0.00%	Br 25	Fht r msl	21.6%	Brb stand	50%	0%	brb attacks	fgt stands	50.0%	F wins	0.07%	Br 17	Fht r msl	21.6%	Brb stand	100%	0%	brb attacks	fgt stands	50.0%	F wins	0.00%	Br 33	Fht r msl	21.6%	Brb stand	74%	0%	brb attacks	fgt stands	50.0%	F wins	0.03%												
Br 10	Fms r htl	18.9%	Brb stand	100%	0%	brb attacks	fgt stands	50.0%	F wins	0.00%	Br 26	Fms r htl	18.9%	Brb stand	63%	50%	brb attacks	fgt stands	50.0%	F wins	0.04%	Br 18	Fms r htl	18.9%	Brb stand	100%	0%	brb attacks	fgt stands	50.0%	F wins	0.00%	Br 34	Fms r htl	18.9%	Brb stand	84%	26%	brb attacks	fgt stands	50.0%	F wins	0.05%												
Br 11	Fcrtr msl	2.4%	Brb stand	50%	50%	brb attacks	fgt stands	50.0%	F wins	0.07%	Br 27	Fcrtr msl	2.4%	Brb stand	5%	38%	brb attacks	fgt stands	50.0%	F wins	0.04%	Br 19	Fcrtr msl	2.4%	Brb stand	63%	38%	brb attacks	fgt stands	50.0%	F wins	0.05%	Br 35	Fcrtr msl	2.4%	Brb stand	16%	16%	brb attacks	fgt stands	50.0%	F wins	0.01%												
Br 12	Fms r crt l	2.1%	Brb stand	74%	26%	brb attacks	fgt stands	50.0%	F wins	0.03%	Br 28	Fms r crt l	2.1%	Brb stand	16%	95%	brb attacks	fgt stands	50.0%	F wins	0.00%	Br 20	Fms r crt l	2.1%	Brb stand	84%	38%	brb attacks	fgt stands	50.0%	F wins	0.04%	Br 36	Fms r crt l	2.1%	Brb stand	34%	84%	brb attacks	fgt stands	50.0%	F wins	0.00%												
Br 13	Fht 2	29.2%	Brb stand	63%	38%	brb attacks	fgt stands	50.0%	F wins	0.05%	Br 29	Fht 2	29.2%	Brb stand	10%	84%	brb attacks	fgt stands	50.0%	F wins	0.01%	Br 21	Fht 2	29.2%	Brb stand	74%	16%	brb attacks	fgt stands	50.0%	F wins	0.02%	Br 37	Fht 2	29.2%	Brb stand	24%	66%	brb attacks	fgt stands	50.0%	F wins	0.00%												
Br 14	Fcrtr htl	3.2%	Brb stand	10%	90%	brb attacks	fgt stands	50.0%	F wins	0.18%	Br 30	Fcrtr htl	3.2%	Brb stand	1%	90%	brb attacks	fgt stands	50.0%	F wins	0.02%	Br 22	Fcrtr htl	3.2%	Brb stand	16%	84%	brb attacks	fgt stands	50.0%	F wins	0.01%	Br 38	Fcrtr htl	3.2%	Brb stand	2%	76%	brb attacks	fgt stands	50.0%	F wins	0.02%												
Br 15	Fht r crt l	3.2%	Brb stand	16%	84%	brb attacks	fgt stands	50.0%	F wins	0.01%	Br 31	Fht r crt l	3.2%	Brb stand	2%	99%	brb attacks	fgt stands	50.0%	F wins	0.00%	Br 23	Fht r crt l	3.2%	Brb stand	24%	84%	brb attacks	fgt stands	50.0%	F wins	0.13%	Br 39	Fht r crt l	3.2%	Brb stand	1%	98%	brb attacks	fgt stands	50.0%	F wins	0.00%												
Br 16	Fcrtr 2	0.4%	Brb stand	1%	99%	brb attacks	fgt stands	50.0%	F wins	0.02%	Br 32	Fcrtr 2	0.4%	Brb stand	0%	100%	brb attacks	fgt stands	50.0%	F wins	0.00%	Br 24	Fcrtr 2	0.4%	Brb stand	76%	2%	brb attacks	fgt stands	50.0%	F wins	0.02%	Br 40	Fcrtr 2	0.4%	Brb stand	0%	0%	brb attacks	fgt stands	50.0%	F wins	0.00%												
		Brb falls	99%		0%	fgt wins	fgt falls	50.0%	B wins	0.00%			Brb falls	100%		0%	fgt wins	fgt falls	50.0%	B wins	0.00%			Brb falls	98%		0%	fgt wins	fgt falls	50.0%	B wins	0.00%			Brb falls	100%		0%	fgt wins	fgt falls	50.0%	B wins	0.00%												
Br 5	8.30%	Fms 2	19.0%	Brb stand	100%	same probability as barbarian starting, repeating Br 5 if fails								Br 7	0.67%	Fms 2	19.0%	Brb stand	100%	same probability as barbarian starting, repeating Br 5 if fails								Br 6	0.57%	Fms 2	19.0%	Brb stand	100%	same probability as barbarian starting, repeating Br 6 if fails								Br 8	0.02%	Fms 2	19.0%	Brb stand	100%	same probability as barbarian starting, repeating Br 6 if fails							
Fighter 2nd		Brb falls	0%		0%	brb attacks	fgt stands	50.0%	F wins	0.09%	Fighter 2nd		Brb falls	0%		0%	brb attacks	fgt stands	50.0%	F wins	0.12%	Fighter 2nd		Brb falls	0%		0%	brb attacks	fgt stands	50.0%	F wins	0.00%	Fighter 2nd		Brb falls	0%		0%	brb attacks	fgt stands	50.0%	F wins	0.00%												
Br 41	Fht r msl	21.6%	Brb stand	50%	50%	brb attacks	fgt stands	50.0%	F wins	0.45%	Br 57	Fht r msl	21.6%	Brb stand	16%	84%	brb attacks	fgt stands	50.0%	F wins	0.01%	Br 49	Fht r msl	21.6%	Brb stand	10%	90%	brb attacks	fgt stands	50.0%	F wins	0.11%	Br 65	Fht r msl	21.6%	Brb stand	0%	100%	brb attacks	fgt stands	50.0%	F wins	0.00%												
Br 42	Fms r htl	18.9%	Brb stand	63%	38%	brb attacks	fgt stands	50.0%	F wins	0.59%	Br 58	Fms r htl	18.9%	Brb stand	24%	76%	brb attacks	fgt stands	50.0%	F wins	0.02%	Br 50	Fms r htl	18.9%	Brb stand	16%	84%	brb attacks	fgt stands	50.0%	F wins	0.09%	Br 66	Fms r htl	18.9%	Brb stand	1%	99%	brb attacks	fgt stands	50.0%	F wins	0.00%												
Br 43	Fcrtr msl	2.4%	Brb stand	10%	90%	brb attacks	fgt stands	50.0%	F wins	0.18%	Br 59	Fcrtr msl	2.4%	Brb stand	0%	100%	brb attacks	fgt stands	50.0%	F wins	0.02%	Br 51	Fcrtr msl	2.4%	Brb stand	0%	100%	brb attacks	fgt stands	50.0%	F wins	0.01%	Br 67	Fcrtr msl	2.4%	Brb stand	0%	100%	brb attacks	fgt stands	50.0%	F wins	0.00%												
Br 44	Fms r crt l	2.1%	Brb stand	24%	76%	brb attacks	fgt stands	50.0%	F wins	0.13%	Br 60	Fms r crt l	2.1%	Brb stand	1%	99%	brb attacks	fgt stands	50.0%	F wins	0.01%	Br 52	Fms r crt l	2.1%	Brb stand	1%	99%	brb attacks	fgt stands	50.0%	F wins	0.00%	Br 68	Fms r crt l	2.1%	Brb stand	0%	100%	brb attacks	fgt stands	50.0%	F wins	0.00%												
Br 45	Fht 2	29.2%	Brb stand	16%	84%	brb attacks	fgt stands	50.0%	F wins	2.04%	Br 61	Fht 2	29.2%	Brb stand	1%	99%	brb attacks	fgt stands	50.0%	F wins	0.20%	Br 53	Fht 2	29.2%	Brb stand	0%	100%	brb attacks	fgt stands	50.0%	F wins	0.17%	Br 69	Fht 2	29.2%	Brb stand	0%	100%	brb attacks	fgt stands	50.0%	F wins	0.00%												
Br 46	Fcrtr htl	3.2%	Brb stand	2%	98%	brb attacks	fgt stands	50.0%	F wins	0.26%	Br 62	Fcrtr htl	3.2%	Brb stand	0%	100%	brb attacks	fgt stands	50.0%	F wins	0.02%	Br 54	Fcrtr htl	3.2%	Brb stand	0%	100%	brb attacks	fgt stands	50.0%	F wins	0.02%	Br 70	Fcrtr htl	3.2%	Brb stand	0%	100%	brb attacks	fgt stands	50.0%	F wins	0.00%												
Br 47	Fht r crt l	3.2%	Brb stand	2%	98%	brb attacks	fgt stands	50.0%	F wins	0.26%	Br 63	Fht r crt l	3.2%	Brb stand	0%	100%	brb attacks	fgt stands	50.0%	F wins	0.00%	Br 55	Fht r crt l	3.2%	Brb stand	0%	100%	brb attacks	fgt stands	50.0%	F wins	0.02%	Br 71	Fht r crt l	3.2%	Brb stand	0%	100%	brb attacks	fgt stands	50.0%	F wins	0.00%												
Br 48	Fcrtr 2	0.4%	Brb stand	0%	100%	brb attacks	fgt stands	50.0%	F wins	0.03%	Br 64	Fcrtr 2	0.4%	Brb stand	0%	100%	brb attacks	fgt stands	50.0%	F wins	0.00%	Br 56	Fcrtr 2	0.4%	Brb stand	0%	100%	brb attacks	fgt stands	50.0%	F wins	0.00%	Br 72	Fcrtr 2	0.4%	Brb stand	0%	100%	brb attacks	fgt stands	50.0%	F wins	0.00%												
		Brb falls	100%		0%	fgt wins	fgt falls	50.0%	B wins	0.00%			Brb falls	100%		0%	fgt wins	fgt falls	50.0%	B wins	0.00%			Brb falls	100%		0%	fgt wins	fgt falls	50.0%	B wins	0.00%			Brb falls	100%		0%	fgt wins	fgt falls	50.0%	B wins	0.00%												

Table 11. Extrapolating the results and final result.

Branch 0	Extrapolating	Branch 201	Branch 202 + 203	Total
Fgt wins	Branch 0	Fgt wins	Fgt wins	Fgt wins
9.17%	14.22%	21.63%	0.00%	19.64%
Brb wins	Brb wins	Brb wins	Brb wins	Brb wins
27.44%	56.75%	16.21%	21.63%	80.36%
		21.63%		

Table 12. Results of the fights for the level 1 builds.

	Fighter Sword & Board		Lvl 1					
	Number of victories	% victories	Remaining HP	% Remaining HP	Average no of rounds	Initiatives won	% Initiatives	Winning with Initiative
Fighter Sword & Board	614	61.4%	7.3	60.5%	3.4	490	49.0%	329
Fighter 2 handed sword	386	38.6%	6.4	53.2%	3.4	510	51.0%	225
Fighter Sword & Board	567	56.7%	7.1	59.5%	3.2	417	41.7%	273
Fighter Two Weapons	433	43.3%	6.4	57.8%	3.5	583	58.3%	289
Fighter Sword & Board	250	25.0%	8.0	66.3%	3.0	490	49.0%	162
Barbarian	750	75.0%	11.4	67.1%	1.9	510	51.0%	422
Fighter Sword & Board	905	90.5%	9.4	78.7%	3.5	428	42.8%	396
Ranger	95	9.5%	4.7	52.6%	4.8	572	57.2%	63
Fighter Sword & Board	855	85.5%	8.3	69.2%	3.0	422	42.2%	376
Monk	145	14.5%	4.9	49.4%	3.6	578	57.8%	99

	Fighter Two Handed Sword		Lvl 1					
	Number of victories	% victories	Remaining HP	% Remaining HP	Average no of rounds	Initiatives won	% Initiatives	Winning with Initiative
Fighter Two Handed Sword	386	38.6%	6.4	53.2%	3.4	510	51.0%	225
Fighter Sword & Board	614	61.4%	7.3	60.5%	3.4	490	49.0%	329
Fighter Two Handed Sword	401	40.1%	6.1	51.0%	3.0	423	42.3%	204
Fighter Two Weapons	599	59.9%	6.5	59.4%	3.2	577	57.7%	380
Fighter Two Handed Sword	162	16.2%	7.9	66.1%	2.7	500	50.0%	107
Barbarian	838	83.8%	12.0	70.7%	1.8	500	50.0%	445
Fighter Two Handed Sword	739	73.9%	7.9	65.6%	3.6	406	40.6%	322
Ranger	261	26.1%	4.7	52.3%	4.0	594	59.4%	177
Fighter Two Handed Sword	677	67.7%	7.1	59.2%	3.1	396	39.6%	291
Monk	323	32.3%	5.3	53.3%	3.4	604	60.4%	218

	Fighter Two Weapons		Lvl 1					
	Number of victories	% victories	Remaining HP	% Remaining HP	Average no of rounds	Initiatives won	% Initiatives	Winning with Initiative
Fighter Two Weapons	433	43.3%	6.4	57.8%	3.5	583	58.3%	289
Fighter Sword & Board	567	56.7%	7.1	59.5%	3.2	417	41.7%	273
Fighter Two Weapons	599	59.9%	6.5	59.4%	3.2	577	57.7%	380
Fighter Two Handed Sword	401	40.1%	6.1	51.0%	3.0	423	42.3%	204
Fighter Two Weapons	291	29.1%	6.8	61.8%	2.8	568	56.8%	211
Barbarian	709	70.9%	10.7	63.2%	1.7	432	43.2%	352
Fighter Two Weapons	823	82.3%	8.0	72.5%	3.3	477	47.7%	407
Ranger	177	17.7%	4.6	50.8%	3.4	523	52.3%	107
Fighter Two Weapons	825	82.5%	7.5	68.0%	2.8	511	51.1%	436
Monk	175	17.5%	4.9	49.1%	2.9	489	48.9%	100

Table 12. (cont.).

	Barbarian		Lvl 1					
	Number of victories	% victories	Remaining HP	% Remaining HP	Average no of rounds	Initiatives won	% Initiatives	Winning with Initiative
Barbarian	750	75.0%	11.4	67.1%	1.9	510	51.0%	422
Fighter Sword & Board	250	25.0%	8.0	66.3%	3.0	490	49.0%	162
Barbarian	838	83.8%	12.0	70.7%	1.8	500	50.0%	445
Fighter Two Handed Sword	162	16.2%	7.9	66.1%	2.7	500	50.0%	107
Barbarian	709	70.9%	10.7	63.2%	1.7	432	43.2%	352
Fighter Two Weapons	291	29.1%	6.8	61.8%	2.8	568	56.8%	211
Barbarian	878	87.8%	11.9	70.0%	1.8	409	40.9%	381
Ranger	122	12.2%	6.7	74.6%	3.1	591	59.1%	94
Barbarian	901	90.1%	12.5	73.7%	1.6	464	46.4%	431
Monk	99	9.9%	6.1	60.9%	2.8	536	53.6%	66

	Ranger		Lvl 1					
	Number of victories	% victories	Remaining HP	% Remaining HP	Average no of rounds	Initiatives won	% Initiatives	Winning with Initiative
Ranger	95	9.5%	4.7	52.6%	4.8	572	57.2%	63
Fighter Sword & Board	905	90.5%	9.4	78.7%	3.5	428	42.8%	396
Ranger	261	26.1%	4.7	52.3%	4.0	594	59.4%	177
Fighter Two Handed Sword	739	73.9%	7.9	65.6%	3.6	406	40.6%	322
Ranger	177	17.7%	4.6	50.8%	3.4	523	52.3%	107
Fighter Two Weapons	823	82.3%	8.0	72.5%	3.3	477	47.7%	407
Ranger	122	12.2%	6.7	74.6%	3.1	591	59.1%	94
Barbarian	878	87.8%	11.9	70.0%	1.8	409	40.9%	381
Ranger	526	52.6%	5.2	57.8%	3.7	520	52.0%	295
Monk	474	47.4%	5.6	56.0%	3.6	480	48.0%	249

	Monk		Lvl 1					
	Number of victories	% victories	Remaining HP	% Remaining HP	Average no of rounds	Initiatives won	% Initiatives	Winning with Initiative
Monk	145	14.5%	4.9	49.4%	3.6	578	57.8%	99
Fighter Sword & Board	855	85.5%	8.3	69.2%	3.0	422	42.2%	376
Monk	323	32.3%	5.3	53.3%	3.4	604	60.4%	218
Fighter Two Handed Sword	677	67.7%	7.1	59.2%	3.1	396	39.6%	291
Monk	175	17.5%	4.9	49.1%	2.9	489	48.9%	100
Fighter Two Weapons	825	82.5%	7.5	68.0%	2.8	511	51.1%	436
Monk	99	9.9%	6.1	60.9%	2.8	536	53.6%	66
Barbarian	901	90.1%	12.5	73.7%	1.6	464	46.4%	431
Monk	474	47.4%	5.6	56.0%	3.6	480	48.0%	249
Ranger	526	52.6%	5.2	57.8%	3.7	520	52.0%	295

The Monk, on the other hand, performs surprisingly well (I definitely did not expect the Monk to win a single fight!). Thanks to a fully developed Flurry of Blows and the Monk's Belt, he is capable of dealing a lot of damage to builds

with low Armor Class, losing badly only to the S&B Fighter and the Barbarian.

Finally, the S&B Fighter convincingly defeats the THS Fighter and all the other opponents but the Barbarian. Thanks to stronger equipment,

the S&B Fighter is capable of defeating the opponent quickly, while keeping a very high Armor Class. The detailed results can be seen on Table 15.

Table 16 shows again the averages and consolidated results. The fights are much shorter thanks to the increase on damage

output with the better equipment. It is clear that the initiative factor becomes even more impacting than in the two previous scenarios. A high percentage of the fights won by the Ranger and the Monk are when they have the initiative. This effect is also a consequence of the higher damage output.

Table 13. Some consolidated results for the level 1 combats.

Lvl 1	Builds defeated	Fights won	Avg no turns	Initiatives won	Winning with Initiative
Fighter Sword & Board	4	3,191	3.2	2,247	1,536
Fighter Two Handed Sword	2	2,365	3.2	2,235	1,149
Fighter Two Weapons	3	2,971	3.1	2,716	1,723
Barbarian	5	4,076	1.7	2,315	2,031
Ranger	1	1,181	3.8	2,800	736
Monk	0	1,216	3.3	2,687	732

LEVEL 20

Finally, on level 20, the Barbarian is once more completely dominant. With a monstrous amount of Health Points and damage output, he easily defeats all other classes and completely destroys the S&B Fighter, who is incapable of dealing enough damage.

The S&B Fighter, though completely defeated by the Barbarian, overpowers all the other classes through consistent damage and very high Armor Class. The TW Fighter and the Ranger, with enough money to equip themselves, perform very similarly, defeating both the Monk and the THS Fighter.

The Monk, once again, is crushed by the other classes. The Monk's interesting feats and abilities are not enough to deal with increasingly

powerful weapons and armors. The detailed results can be seen on Table 17.

Table 18 shows the averages and consolidated results. The fights are still short, with high damage output by all classes. The information of the consolidated results were used to generate the three graphics presented on Figures 1–3.

Once again, the initiative factor is more important than in the previous three scenarios. Most of the fights won by the Ranger, Monk and TW Fighter happened when they had the initiative, while the Barbarian almost did not lose when she had the initiative.

Table 14. Results of the fights for the level 6 builds.

	Fighter Sword & Board		Lvl 6					
	Number of victories	% victories	Remaining HP	% Remaining HP	Average no of rounds	Initiatives won	% Initiatives	Winning with Initiative
Fighter Sword & Board	478	47.8%	23.3	46.5%	4.2	345	34.5%	199
Fighter 2 handed sword	522	52.2%	23.8	47.5%	3.9	655	65.5%	376
Fighter Sword & Board	852	85.2%	26.7	53.5%	3.9	196	19.6%	176
Fighter Two Weapons	148	14.8%	16.3	37.0%	5.1	804	80.4%	128
Fighter Sword & Board	358	35.8%	20.3	40.7%	3.8	335	33.5%	172
Barbarian	642	64.2%	31.6	42.1%	3.1	665	66.5%	479
Fighter Sword & Board	966	96.6%	32.7	65.5%	3.3	337	33.7%	332
Ranger	34	3.4%	9.0	24.3%	4.9	663	66.3%	29
Fighter Sword & Board	979	97.9%	34.5	69.0%	3.4	186	18.6%	183
Monk	21	2.1%	9.5	22.1%	4.5	814	81.4%	18

	Fighter Two Handed Sword		Lvl 6					
	Number of victories	% victories	Remaining HP	% Remaining HP	Average no of rounds	Initiatives won	% Initiatives	Winning with Initiative
Fighter Two Handed Sword	522	52.2%	23.8	47.5%	3.9	655	65.5%	376
Fighter Sword & Board	478	47.8%	23.3	46.5%	4.2	345	34.5%	199
Fighter Two Handed Sword	873	87.3%	26.5	53.1%	3.1	358	35.8%	335
Fighter Two Weapons	127	12.7%	18.0	40.9%	4.1	642	64.2%	104
Fighter Two Handed Sword	439	43.9%	19.6	39.3%	3.0	525	52.5%	298
Barbarian	561	56.1%	31.0	41.4%	2.5	475	47.5%	334
Fighter Two Handed Sword	948	94.8%	33.2	66.4%	2.7	542	54.2%	528
Ranger	52	5.2%	12.5	33.7%	4.0	458	45.8%	38
Fighter Two Handed Sword	959	95.9%	34.6	69.2%	2.8	328	32.8%	319
Monk	41	4.1%	10.6	24.6%	4.5	672	67.2%	32

	Fighter Two Weapons		Lvl 6					
	Number of victories	% victories	Remaining HP	% Remaining HP	Average no of rounds	Initiatives won	% Initiatives	Winning with Initiative
Fighter Two Weapons	148	14.8%	16.3	37.0%	5.1	804	80.4%	128
Fighter Sword & Board	852	85.2%	26.7	53.5%	3.9	196	19.6%	176
Fighter Two Weapons	127	12.7%	18.0	40.9%	4.1	642	64.2%	104
Fighter Two Handed Sword	873	87.3%	26.5	53.1%	3.1	358	35.8%	335
Fighter Two Weapons	126	12.6%	13.8	31.3%	3.9	655	65.5%	107
Barbarian	874	87.4%	37.8	50.4%	2.5	345	34.5%	326
Fighter Two Weapons	779	77.9%	20.9	47.4%	3.5	713	71.3%	584
Ranger	221	22.1%	11.2	30.3%	3.8	287	28.7%	92
Fighter Two Weapons	862	86.2%	22.7	51.7%	3.7	508	50.8%	461
Monk	138	13.8%	13.4	31.1%	4.3	492	49.2%	91

Table 14. (cont.).

		Barbarian		Lvl 6					
		Number of victories	% victories	Remaining HP	% Remaining HP	Average no of rounds	Initiatives won	% Initiatives	Winning with Initiative
Barbarian		642	64.2%	31.6	42.1%	3.1	665	66.5%	479
Fighter Sword & Board		358	35.8%	20.3	40.7%	3.8	335	33.5%	172
Barbarian		561	56.1%	31.0	41.4%	2.5	475	47.5%	334
Fighter Two Handed Sword		439	43.9%	19.6	39.3%	3.0	525	52.5%	298
Barbarian		874	87.4%	37.8	50.4%	2.5	345	34.5%	326
Fighter Two Weapons		126	12.6%	13.8	31.3%	3.9	655	65.5%	107
Barbarian		964	96.4%	48.2	64.2%	2.2	525	52.5%	519
Ranger		36	3.6%	10.1	27.4%	3.8	475	47.5%	30
Barbarian		997	99.7%	49.8	66.4%	2.4	306	30.6%	306
Monk		3	0.3%	7.7	17.8%	4.3	694	69.4%	3

		Ranger		Lvl 6					
		Number of victories	% victories	Remaining HP	% Remaining HP	Average no of rounds	Initiatives won	% Initiatives	Winning with Initiative
Ranger		34	3.4%	9.0	24.3%	4.9	663	66.3%	29
Fighter Sword & Board		966	96.6%	32.7	65.5%	3.3	337	33.7%	332
Ranger		52	5.2%	12.5	33.7%	4.0	458	45.8%	38
Fighter Two Handed Sword		948	94.8%	33.2	66.4%	2.7	542	54.2%	528
Ranger		221	22.1%	11.2	30.3%	3.8	287	28.7%	92
Fighter Two Weapons		779	77.9%	20.9	47.4%	3.5	713	71.3%	584
Ranger		36	3.6%	10.1	27.4%	3.8	475	47.5%	30
Barbarian		964	96.4%	48.2	64.2%	2.2	525	52.5%	519
Ranger		652	65.2%	15.6	42.1%	3.8	338	33.8%	254
Monk		348	34.8%	14.4	33.5%	3.9	662	66.2%	264

		Monk		Lvl 6					
		Number of victories	% victories	Remaining HP	% Remaining HP	Average no of rounds	Initiatives won	% Initiatives	Winning with Initiative
Monk		21	2.1%	9.5	22.1%	4.5	814	81.4%	18
Fighter Sword & Board		979	97.9%	34.5	69.0%	3.4	186	18.6%	183
Monk		41	4.1%	10.6	24.6%	4.5	672	67.2%	32
Fighter Two Handed Sword		959	95.9%	34.6	69.2%	2.8	328	32.8%	319
Monk		138	13.8%	13.4	31.1%	4.3	492	49.2%	91
Fighter Two Weapons		862	86.2%	22.7	51.7%	3.7	508	50.8%	461
Monk		3	0.3%	7.7	17.8%	4.3	694	69.4%	3
Barbarian		997	99.7%	49.8	66.4%	2.4	306	30.6%	306
Monk		348	34.8%	14.4	33.5%	3.9	662	66.2%	264
Ranger		652	65.2%	15.6	42.1%	3.8	338	33.8%	254

Table 15. Some consolidated results for the level 6 combats.

Lvl 6	Builds defeated	Fights won	Avg no turns	Initiatives won	Winning with Initiative
Fighter Sword & Board	3	3,633	3.7	1,399	1,062
Fighter Two Handed Sword	4	3,741	3.1	2,408	1,856
Fighter Two Weapons	2	2,042	4.1	3,322	1,384
Barbarian	5	4,038	2.5	2,316	1,964
Ranger	1	995	4.1	2,221	443
Monk	0	551	4.3	3,334	408

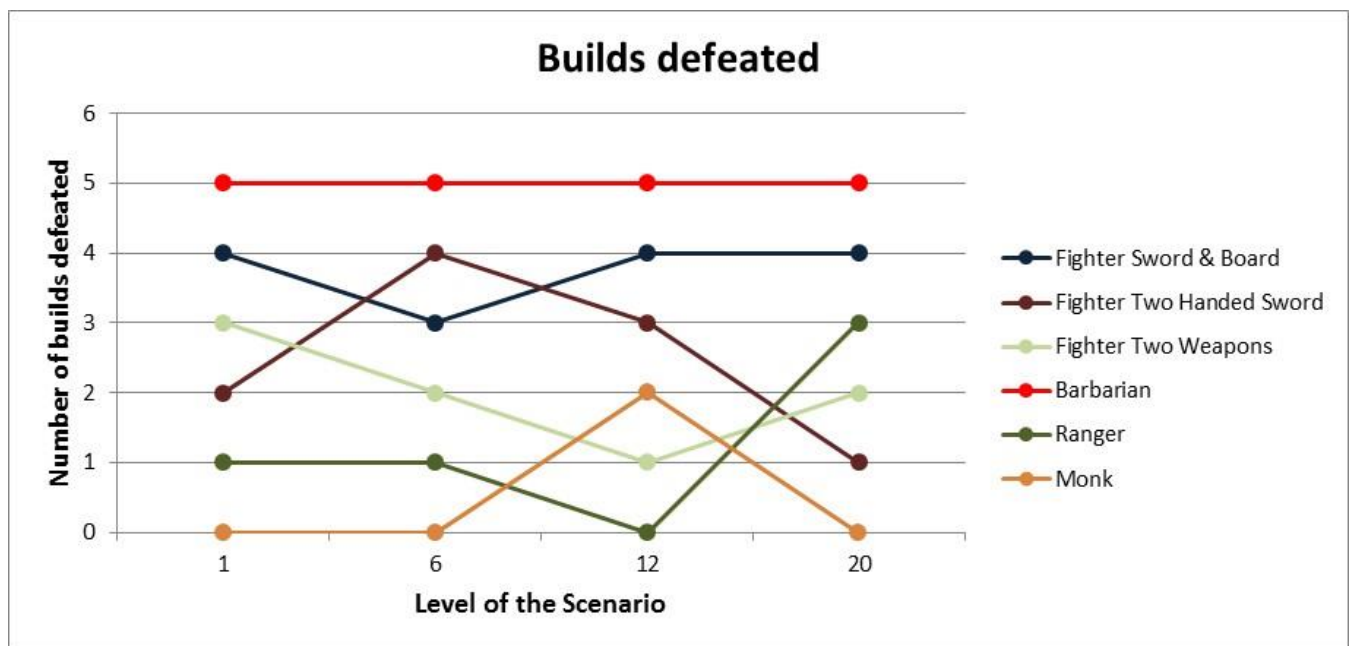


Figure 1. Number of builds defeated.

Table 16. Results of the fights for the level 12 builds.

	Fighter Sword & Board		Lvl 12					
	Number of victories	% victories	Remaining HP	% Remaining HP	Average no of rounds	Initiatives won	% Initiatives	Winning with Initiative
Fighter Sword & Board	614	61.4%	58.3	44.5%	2.3	524	52.4%	400
Fighter 2 handed sword	386	38.6%	46.4	39.0%	2.1	476	47.6%	262
Fighter Sword & Board	886	88.6%	68.1	52.0%	2.7	332	33.2%	317
Fighter Two Weapons	114	11.4%	31.9	26.8%	3.4	668	66.8%	99
Fighter Sword & Board	342	34.2%	49.1	37.5%	2.6	496	49.6%	241
Barbarian	658	65.8%	75.5	42.0%	2.2	504	50.4%	403
Fighter Sword & Board	949	94.9%	78.1	59.6%	2.5	478	47.8%	470
Ranger	51	5.1%	25.6	24.2%	3.3	522	52.2%	43
Fighter Sword & Board	810	81.0%	70.9	54.1%	2.4	370	37.0%	333
Monk	190	19.0%	34.0	32.1%	2.7	630	63.0%	153

	Fighter Two Handed Sword		Lvl 12					
	Number of victories	% victories	Remaining HP	% Remaining HP	Average no of rounds	Initiatives won	% Initiatives	Winning with Initiative
Fighter Two Handed Sword	386	38.6%	46.4	39.0%	2.1	476	47.6%	262
Fighter Sword & Board	614	61.4%	58.3	44.5%	2.3	524	52.4%	400
Fighter Two Handed Sword	631	63.1%	51.5	43.3%	1.7	311	31.1%	285
Fighter Two Weapons	369	36.9%	45.1	37.9%	2.0	689	68.9%	343
Fighter Two Handed Sword	291	29.1%	39.0	32.8%	2.0	497	49.7%	252
Barbarian	709	70.9%	99.8	55.5%	1.5	503	50.3%	464
Fighter Two Handed Sword	731	73.1%	67.1	56.4%	1.5	482	48.2%	444
Ranger	269	26.9%	42.8	40.4%	1.9	518	51.8%	231
Fighter Two Handed Sword	550	55.0%	64.5	54.2%	1.4	379	37.9%	309
Monk	450	45.0%	59.7	56.3%	1.5	621	62.1%	380

	Fighter Two Weapons		Lvl 12					
	Number of victories	% victories	Remaining HP	% Remaining HP	Average no of rounds	Initiatives won	% Initiatives	Winning with Initiative
Fighter Two Weapons	114	11.4%	31.9	26.8%	3.4	668	66.8%	99
Fighter Sword & Board	886	88.6%	68.1	52.0%	2.7	332	33.2%	317
Fighter Two Weapons	369	36.9%	45.1	37.9%	2.0	689	68.9%	343
Fighter Two Handed Sword	631	63.1%	51.5	43.3%	1.7	311	31.1%	285
Fighter Two Weapons	243	24.3%	37.5	31.5%	2.1	676	67.6%	230
Barbarian	757	75.7%	91.0	50.6%	1.6	324	32.4%	311
Fighter Two Weapons	629	62.9%	54.1	45.5%	2.2	663	66.3%	511
Ranger	371	37.1%	40.6	38.3%	2.2	337	33.7%	219
Fighter Two Weapons	422	42.2%	49.7	41.8%	2.1	586	58.6%	335
Monk	578	57.8%	48.6	45.9%	1.9	414	41.4%	327

Table 16. (cont.).

		Barbarian		Lvl 12					
		Number of victories	% victories	Remaining HP	% Remaining HP	Average no of rounds	Initiatives won	% Initiatives	Winning with Initiative
Barbarian		658	65.8%	75.5	42.0%	2.2	504	50.4%	403
Fighter	Sword & Board	342	34.2%	49.1	37.5%	2.6	496	49.6%	241
Barbarian		709	70.9%	99.8	55.5%	1.5	503	50.3%	464
Fighter	Two Handed Sword	291	29.1%	39.0	32.8%	2.0	497	49.7%	252
Barbarian		757	75.7%	91.0	50.6%	1.6	324	32.4%	311
Fighter	Two Weapons	243	24.3%	37.5	31.5%	2.1	676	67.6%	230
Barbarian		851	85.1%	109.0	60.6%	1.4	483	48.3%	470
Ranger		149	14.9%	32.5	30.6%	2.1	517	51.7%	136
Barbarian		710	71.0%	98.5	54.7%	1.3	369	36.9%	338
Monk		290	29.0%	46.7	44.1%	1.9	631	63.1%	259

		Ranger		Lvl 12					
		Number of victories	% victories	Remaining HP	% Remaining HP	Average no of rounds	Initiatives won	% Initiatives	Winning with Initiative
Ranger		51	5.1%	25.6	24.2%	3.3	522	52.2%	43
Fighter	Sword & Board	949	94.9%	78.1	59.6%	2.5	478	47.8%	470
Ranger		269	26.9%	42.8	40.4%	1.9	518	51.8%	231
Fighter	Two Handed Sword	731	73.1%	67.1	56.4%	1.5	482	48.2%	444
Ranger		371	37.1%	40.6	38.3%	2.2	337	33.7%	219
Fighter	Two Weapons	629	62.9%	54.1	45.5%	2.2	663	66.3%	511
Ranger		149	14.9%	32.5	30.6%	2.1	517	51.7%	136
Barbarian		851	85.1%	109.0	60.6%	1.4	483	48.3%	470
Ranger		310	31.0%	45.7	43.1%	2.0	422	42.2%	214
Monk		690	69.0%	56.9	53.7%	1.8	578	57.8%	482

		Monk		Lvl 12					
		Number of victories	% victories	Remaining HP	% Remaining HP	Average no of rounds	Initiatives won	% Initiatives	Winning with Initiative
Monk		190	19.0%	34.0	32.1%	2.7	630	63.0%	153
Fighter	Sword & Board	810	81.0%	70.9	54.1%	2.4	370	37.0%	333
Monk		450	45.0%	59.7	56.3%	1.5	621	62.1%	380
Fighter	Two Handed Sword	550	55.0%	64.5	54.2%	1.4	379	37.9%	309
Monk		578	57.8%	48.6	45.9%	1.9	414	41.4%	327
Fighter	Two Weapons	422	42.2%	49.7	41.8%	2.1	586	58.6%	335
Monk		290	29.0%	46.7	44.1%	1.9	631	63.1%	259
Barbarian		710	71.0%	98.5	54.7%	1.3	369	36.9%	338
Monk		690	69.0%	56.9	53.7%	1.8	578	57.8%	482
Ranger		310	31.0%	45.7	43.1%	2.0	422	42.2%	214

Table 17. Some consolidated results for the level 12 combats.

Lvl 12	Builds defeated	Fights won	Avg no turns	Initiatives won	Winning with Initiative
Fighter Sword & Board	4	3,601	2.5	2,200	1,761
Fighter Two Handed Sword	3	2,589	1.8	2,145	1,552
Fighter Two Weapons	1	1,777	2.4	3,282	1,518
Barbarian	5	3,685	1.6	2,183	1,986
Ranger	0	1,150	2.3	2,316	843
Monk	2	2,198	2.0	2,874	1,601

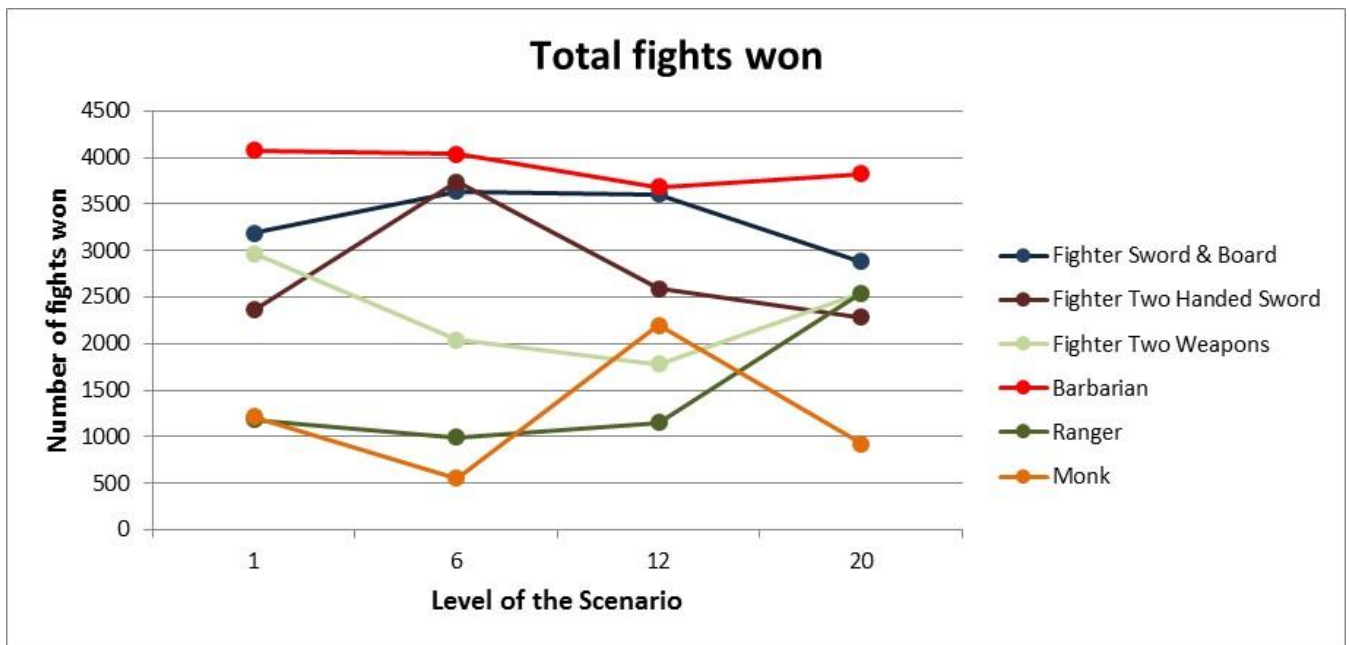


Figure 2. Total fights won.

Table 18. Results of the fights for the level 20 builds.

	Fighter Sword & Board		Lvl 20					
	Number of victories	% victories	Remaining HP	% Remaining HP	Average no of rounds	Initiatives won	% Initiatives	Winning with Initiative
Fighter Sword & Board	577	57.7%	99.4	39.0%	2.2	521	52.1%	401
Fighter 2 handed sword	423	42.3%	88.3	37.6%	2.3	479	47.9%	303
Fighter Sword & Board	672	67.2%	93.2	36.6%	2.4	240	24.0%	219
Fighter Two Weapons	328	32.8%	70.5	30.0%	2.8	760	76.0%	307
Fighter Sword & Board	78	7.8%	61.5	24.1%	3.1	468	46.8%	68
Barbarian	922	92.2%	150.7	42.3%	2.2	532	53.2%	522
Fighter Sword & Board	655	65.5%	91.0	35.7%	2.1	175	17.5%	155
Ranger	345	34.5%	69.9	32.7%	2.5	825	82.5%	325
Fighter Sword & Board	898	89.8%	140.1	54.9%	2.0	384	38.4%	370
Monk	102	10.2%	65.5	30.6%	2.5	616	61.6%	88

	Fighter Two Handed Sword		Lvl 20					
	Number of victories	% victories	Remaining HP	% Remaining HP	Average no of rounds	Initiatives won	% Initiatives	Winning with Initiative
Fighter Two Handed Sword	423	42.3%	88.3	37.6%	2.3	479	47.9%	303
Fighter Sword & Board	577	57.7%	99.4	39.0%	2.2	521	52.1%	401
Fighter Two Handed Sword	444	44.4%	84.0	35.7%	1.8	219	21.9%	185
Fighter Two Weapons	556	55.6%	83.6	35.6%	2.1	781	78.1%	522
Fighter Two Handed Sword	331	33.1%	57.4	24.4%	2.1	515	51.5%	291
Barbarian	669	66.9%	162.5	45.6%	2.0	485	48.5%	445
Fighter Two Handed Sword	442	44.2%	91.9	39.1%	1.6	201	20.1%	176
Ranger	558	55.8%	72.5	33.9%	2.0	799	79.9%	533
Fighter Two Handed Sword	646	64.6%	122.5	52.1%	1.4	377	37.7%	335
Monk	354	35.4%	93.0	43.5%	1.8	623	62.3%	312

	Fighter Two Weapons		Lvl 20					
	Number of victories	% victories	Remaining HP	% Remaining HP	Average no of rounds	Initiatives won	% Initiatives	Winning with Initiative
Fighter Two Weapons	328	32.8%	70.5	30.0%	2.8	760	76.0%	307
Fighter Sword & Board	672	67.2%	93.2	36.6%	2.4	240	24.0%	219
Fighter Two Weapons	556	55.6%	83.6	35.6%	2.1	781	78.1%	522
Fighter Two Handed Sword	444	44.4%	84.0	35.7%	1.8	219	21.9%	185
Fighter Two Weapons	313	31.3%	77.2	32.9%	2.1	797	79.7%	308
Barbarian	687	68.7%	183.8	51.6%	1.5	203	20.3%	198
Fighter Two Weapons	484	48.4%	93.3	39.7%	2.0	415	41.5%	327
Ranger	516	51.6%	85.1	39.8%	2.0	585	58.5%	428
Fighter Two Weapons	859	85.9%	155.9	66.3%	1.6	671	67.1%	633
Monk	141	14.1%	82.8	38.7%	2.1	329	32.9%	103

Table 18. (cont.).

		Barbarian		Lvl 20					
		Number of victories	% victories	Remaining HP	% Remaining HP	Average no of rounds	Initiatives won	% Initiatives	Winning with Initiative
Barbarian		922	92.2%	150.7	42.3%	2.2	532	53.2%	522
Fighter	Sword & Board	78	7.8%	61.5	24.1%	3.1	468	46.8%	68
Barbarian		669	66.9%	162.5	45.6%	2.0	485	48.5%	445
Fighter	Two Handed Sword	331	33.1%	57.4	24.4%	2.1	515	51.5%	291
Barbarian		687	68.7%	183.8	51.6%	1.5	203	20.3%	198
Fighter	Two Weapons	313	31.3%	77.2	32.9%	2.1	797	79.7%	308
Barbarian		720	72.0%	179.6	50.4%	1.3	168	16.8%	164
Ranger		280	28.0%	70.8	33.1%	2.1	832	83.2%	276
Barbarian		827	82.7%	209.2	58.8%	1.2	384	38.4%	374
Monk		173	17.3%	73.9	34.5%	2.0	616	61.6%	163

		Ranger		Lvl 20					
		Number of victories	% victories	Remaining HP	% Remaining HP	Average no of rounds	Initiatives won	% Initiatives	Winning with Initiative
Ranger		345	34.5%	69.9	32.7%	2.5	825	82.5%	325
Fighter	Sword & Board	655	65.5%	91.0	35.7%	2.1	175	17.5%	155
Ranger		558	55.8%	72.5	33.9%	2.0	799	79.9%	533
Fighter	Two Handed Sword	442	44.2%	91.9	39.1%	1.6	201	20.1%	176
Ranger		516	51.6%	85.1	39.8%	2.0	585	58.5%	428
Fighter	Two Weapons	484	48.4%	93.3	39.7%	2.0	415	41.5%	327
Ranger		280	28.0%	70.8	33.1%	2.1	832	83.2%	276
Barbarian		720	72.0%	179.6	50.4%	1.3	168	16.8%	164
Ranger		844	84.4%	155.6	72.7%	1.4	718	71.8%	659
Monk		156	15.6%	105.6	49.3%	1.8	282	28.2%	97

		Monk		Lvl 20					
		Number of victories	% victories	Remaining HP	% Remaining HP	Average no of rounds	Initiatives won	% Initiatives	Winning with Initiative
Monk		102	10.2%	65.5	30.6%	2.5	616	61.6%	88
Fighter	Sword & Board	898	89.8%	140.1	54.9%	2.0	384	38.4%	370
Monk		354	35.4%	93.0	43.5%	1.8	623	62.3%	312
Fighter	Two Handed Sword	646	64.6%	122.5	52.1%	1.4	377	37.7%	335
Monk		141	14.1%	82.8	38.7%	2.1	329	32.9%	103
Fighter	Two Weapons	859	85.9%	155.9	66.3%	1.6	671	67.1%	633
Monk		173	17.3%	73.9	34.5%	2.0	616	61.6%	163
Barbarian		827	82.7%	209.2	58.8%	1.2	384	38.4%	374
Monk		156	15.6%	105.6	49.3%	1.8	282	28.2%	97
Ranger		844	84.4%	155.6	72.7%	1.4	718	71.8%	659

Table 19. Some consolidated results for the level 20 combats.

Lvl 20	Builds defeated	Fights won	Fights Lost	Avg no turns	Initiatives won	Winning with Initiative
Fighter Sword & Board	4	2,880	2,120	2.4	1,788	1,213
Fighter Two Handed Sword	1	2,286	2,714	1.8	1,791	1,290
Fighter Two Weapons	2	2,540	2,460	2.1	3,424	2,097
Barbarian	5	3,825	1,175	1.7	1,772	1,703
Ranger	3	2,543	2,457	2.0	3,759	2,221
Monk	0	926	4,074	2.0	2,466	763

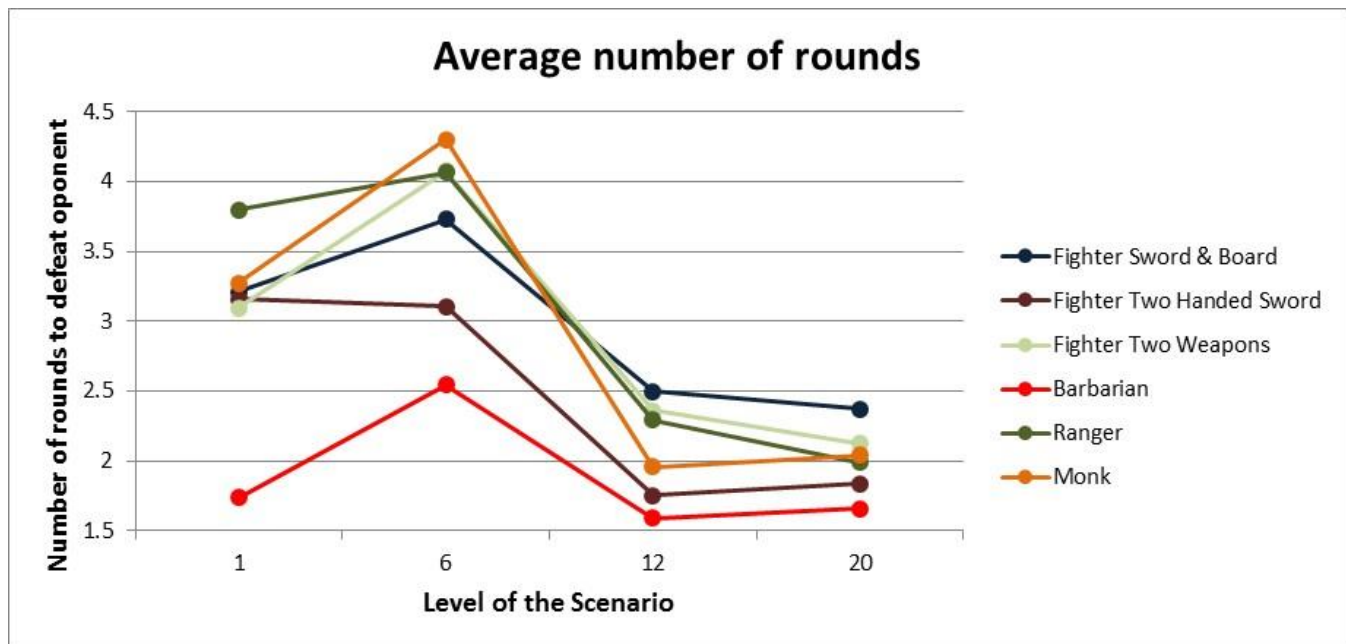


Figure 3. Average number of rounds taken to defeat the opponent.

CONCLUSION

First and foremost, I find it important to state clearly that the combat is but a small part of the D&D game. Though it might be tempting to create an efficient character for battles, there are many different ways a character can be truly powerful, useful and, most important of all, fun to play with. Secondly, 1x1 melee combats are

(thankfully) rare in D&D games. Most battles involve many characters and enemies, making them much more fun and challenging, requiring some amount of team work, planning and creativity. Thirdly, even on 1x1 melee combats, only going for full attacks is not that common. Characters can (and should) have different tactics that involve disarming, tripping,

sundering or any other resource that allow them to overpower the opponent. Having said that, this small simulation shows some interesting points.

The Barbarian is clearly the strongest build of the ones simulated when considering raw power. The high attack bonus and damage output surpass the most solid defenses, while the enormous amount of Health Points protects against the fiercest attacks. The Barbarian is clearly superior to the THS Fighter, when it comes solely to melee fights.

Monks, Rangers and TW Fighters, builds that use a large number of attacks, have trouble against defensive characters, since many of the attacks do not connect. On the other hand, they can consistently defeat characters with low Armor Class, making them interesting choices against Wizards and other spellcasters.

The most interesting finding of this simulation, though, is the increasing impact of the initiative on the melee combats, when considering the possibility of a "full attack", as the characters grow stronger.

Due to powerful items such as Boots of Haste and Belt of Battle (or, even better, spells such as Haste or Righteous Wrath of the Faithfull), winning or losing the initiative can be more important than a careful planning of the attack or the careful creation of a character. This might not be relevant in situations where, as stated above, many characters are fighting at the same time, but it can be a problem when 1x1 melee fights affect the whole outcome of the adventure.

As such, some adaptations of the initiative rule may be interesting when such fights are necessary (gladiator fights, generals meeting in the battlefield, among others). One interesting alternative is the one presented by the Shadowrun system (Hardy *et al.*, 2013) where,

instead of rolling initiative once for all your actions of the round, you roll initiative to define an "initiative gauge". The character to act is the one with the highest "initiative gauge" and each action taken depletes this gauge by some amount.

With the release of D&D 5th edition, many changes were made, including combat rules. Soon enough, I shall play it to give my take on it!

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