Coming Out of the Dungeon: Mathematics and Role-Playing Games

Kris H. Green, St. John Fisher College

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Abstract
After hiding it for many years, I have a confession to make. Throughout middle school and high school my friends and I would gather almost every weekend, spending hours using numbers, probability, and optimization to build models that we could use to simulate almost anything.

That’s right. My big secret is simple. I was a high school mathematical modeler. Of course, our weekend mathematical models didn’t bear any direct relationship to the models we explored in our mathematics and science classes. You would probably not even recognize our regular gatherings as mathematical exercises. If you looked into the room, you’d see a group of us gathered around a table, scribbling on sheets of paper, rolling dice, eating pizza, and talking about dragons, magical spells, and sword fighting. So while I claim we were engaged in mathematical modeling, I suspect that very few math classes built models like ours. After all, how many math teachers have constructed or had their students construct a mathematical representation of a dragon, a magical spell, or a swordfight? And yet, our role-playing games (RPGs) were very much mathematical models of reality — certainly not the reality of our everyday experience, but a reality nonetheless, one intended to simulate a particular kind of world. Most often for us this was the medieval, high-fantasy world of Dungeons & Dragons (D&D), but we also played games with science fiction or modern-day espionage settings. We learned a lot about math, mythology, medieval history, teamwork, storytelling, and imagination in the process. And, when existing games were inadequate vehicles for our imagination, we modified them or created new ones. In doing so, we learned even more about math.

Now that I am a mathematics professor, I find myself reflecting on those days as a “fantasy modeler” and considering various questions. What is the relationship between my two interests of fantasy games and mathematics? Does having been a gamer make me a better mathematician or modeler? Does my mathematical experience make me a better gamer? These different aspects of my life may seem mostly unconnected; indeed, the “nerd” stereotype is associated with both activities, but despite public perception, the community of role-players includes many people who are not scientifically-minded. So we cannot say that role-players like math, or math-lovers role-play, because “that is simply what nerds do.” To get at the deeper question of how mathematics and role-playing are related, we first need to look at the processes of gaming, game designing, and modeling.

Comments

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The role-playing game has made a surprising return to mainstream culture. “Rivals of Waterdeep” is a Dungeons & Dragons show on the live-streaming service Twitch. Players include, from left, Brandon Stennis, Cicero Holmes, Surena Marie and Carlos Luna. Credit...David Kasnic for The New York Times. “Dungeons & Tombs,” out later this month, is the latest in the Dungeons & Dragons “A Young Adventurer’s Guide” series, aimed at introducing younger players to the game. Credit...none. Several factors — some engineered, others organic — led to D&D’s rebirth. The first was Wizard’s decision to reboot its rules system. “So much of that acceptability comes from putting the power of the storyteller in the hands of the players.” Can D&D change the real world? Role-playing Games Stack Exchange is a question and answer site for gamemasters and players of tabletop, paper-and-pencil role-playing games. It only takes a minute to sign up. Sign up to join this community. Because the creators of the game can’t possibly think of everything, the Dungeon Master is given the authority to make a ruling to cover something not defined in the rules (usually, they will ask for a die roll and tell the player that the action will succeed if their roll equals or exceeds a certain number). Graph Paper This is used (Depends on your group, though)! People use graph paper in D&D for mapping things out, either as the Dungeon Master, to keep track of where things are, or as the players, to keep from getting lost. Forbidden Games is raising funds for Dungeon Party on Kickstarter! The Hilarious Coin-Bouncing Role-Playing Game. At the start of each round, you begin by revealing the next room coaster of the dungeon. Different room tiles can have different special effects or rules in play while players are battling the monster in that room. Next the monster coaster is revealed. Players then take turns bouncing a coin on the table, attempting to land it at least halfway on the monster coaster. If it lands, the monster takes damage based on the hero attacking it and any special effects that might be affecting the attack. If the player misses, his hero takes damage based on that specific monster’s attack value. Dunamancy is a new subset of magic in the world of Dungeons and Dragons that will make its canonical premiere in the new Critical Role book, Explorer’s Guide to Wildemount. First introduced to us in the show (by name in Episode 31, in practice in Episode 51), it is a homebrew creation of Dungeon Master Matthew Mercer. Dunamancy has its roots in metaphysics, being a magic that can manipulate relationships between matter, gravity, and can even affect alternate timelines. It is a magic found mostly in the Kryn Dynasty of Xhorhas, derived through the Beacons of the Luxon, the deity of the Kr Computer role-playing games (CRPGs) are a special genre of computer games that bring the tabletop role-playing experience of games such as Dungeons & Dragons to the computer screen. This new edition includes two new chapters: The Modern Age, and a chapter on Indies and Mobile CRPGs. The new modern age chapter will cover, among other topics, Kickstarter/FIG crowdfunded projects such as Torment: Tides of Numenera and Pillars of Eternity. It'll also bring the book up to date with major games such as Dragon Age, Witcher, Skyrim. Chapter 11 ■ Dungeon Master and the Rise of Real-Time 3D. Chapter 12 ■ Other Games of the Golden Age. Chapter 13 ■ The Epic Fails. Chapter 14 ■ The Platinum Age. Chapter 15 ■ Diablo and the Rise of Action RPGs.