

Three Puzzles on a Familiar Theme

Submitted by Justin Kalef, June 2022

Explanatory note: Some time ago, I noticed an original copy of Accolade's classic video game, 'Hardball!', offered for sale on eBay. The listing brought back fond memories of playing the game on my Commodore 64 almost forty years ago, before enjoying a visit from my grandfather. I made the purchase from the somewhat mysterious seller, and soon received my package with the simple return address 'Haddon Hall, UK'. The game was in good condition (other than the soundtrack, which appeared to have been modified), but I also found three sheets of handwritten notes stuffed into the box. Contacting the seller to return them proved impossible. I therefore took the liberty of reading them, in hopes of tracking down the writer. From what I could tell, all three of the sheets were excised from some longer work of literature, but I can't tell whether it was a novel, a screenplay, or something else. One would imagine that the author – one S. Morgenstern – had some professional writing experience, but I haven't been able to find anything else written by him or, perhaps, her. Still, the three fragments I discovered in the game box do hold some interest for those interested in solving logic puzzles. My own guess, admittedly unsubstantiated, is that S. Morgenstern became worried at some point that including the logic puzzles might alienate some of the intended audience, and therefore cut them. Still, they do seem to be just the sort of thing that might amuse some devotees of the Gathering for Gardner. All three fragments involve twists on the familiar 'knights and knaves' puzzles, and their odd setting within Morgenstern's fantasy narrative may be charming for some. I therefore present these three 'objets trouvés', if you will, as my contribution to the G4G14 gift exchange. I have also worked out what I think are solutions to all three problems, and would be glad to pass those solutions along to any interested parties who write to me.

*Best to all,
Justin Kalef*

Fragment 1

"Just one moment," said Vizzini, standing up theatrically. As the Man in Black and Buttercup turned in surprise, he started cackling. "Did you really think that I, one of the great geniuses in all history, would be tricked so easily? Did you imagine that you were the only person on Earth with the foresight to build up a tolerance to iocane powder? You fool!"

The Man in Black stepped up to the table again, noticing an unsteadiness in his feet. "Clever. But I'm afraid it's of no consequence anyway. The Princess is safe with me and, as you admitted, you are no match for my physical strength."

This somehow made Vizzini giggle. "Don't you see? While you were distracting yourself with your little game with the powder, you failed to notice the unusual color of the wine. Do you taste that bitter flavor now? The entire bottle has been treated with the extract of phlephm root. It has a rather paralyzing effect, don't you think? You should be feeling a numbness in your knees about now. I suggest we sit."

The Man in Black did find it more difficult to move his legs. As he sat on his log again, Vizzini continued: "Now, as everyone knows, the only perfect antidote to phlephm root extract is the juice of the phlephm berry. I don't suppose you have any phlephm juice with you? I thought not. I, however, took the antidote minutes before you arrived. I foresaw everything! And if *you'd* like to take some before it's too late, I advise that you watch and listen closely." With that, Vizzini drew a gold cup and a silver cup out of his bag. On the gold cup were engraved the words 'One of these two cups is from Sicily'. On the silver one was engraved 'The gold cup is from Sicily.' "These cups are two of my four favorites," he explained. "One is Sicilian, one is from Florin, one is from Spain, and one is from Greenland. Each is made of a different metal."

"I see only two," said the Man in Black, noticing that he could no longer move his thighs.

"I take at most two with me when I travel", said Vizzini. "But I always make sure that any statement engraved on any of them is true or false, according to a scheme. The Spanish one, you see..."

"No need to say more," said the Man in Black, feeling a strange tingling in his lower back. "I've known too many Spaniards."

"I was going to say," replied Vizzini, "that I make sure that any statement engraved on the Spanish one is true, in memory of one of my frustratingly principled recent employees. Now, of course, I make sure that any statement on the Sicilian cup is false, because – as you should know by now! -- one should never go in against a Sicilian when..."

"Please," begged the Man in Black, "I'm already feeling a tightness in my chest. A little less exposition and more haste, I beg you."

"Fine. I always ensure that the statements on the cups from Spain and Greenland are true, and that those on the cups from Sicily and Florin are false. Into the cups bearing false statements, if either or both are here, I will pour wine laced with ospion, a rather unpleasant toxin. One drop, and you'll be lying here in terrible agony for two full days as you die slowly. There is no known antidote. Into the cup from Spain, should it be among these two, I will pour wine containing enough phlephm juice to cure your current paralysis instantly. And into the cup from Greenland, should it be here, I will pour wine containing the only other antidote to phlephm root extract: tea made from phlephm leaves. A sip of that tea, and you will slip instantly into a very pleasant sleep for twenty-four hours, after which you will awaken to find that the paralysis is gone, I am miles away, and the Princess is dead."

As Vizzini turned away with the cups and fiddled with hidden bottles, the Man in Black asked how he could know that both cups would not be poisoned. "You can't!" retorted Vizzini, returning them to the table. "But consider: given what you know of me, am I the sort of person who would boldly give his enemy a chance to recover, and then perhaps to overpower me and force me to drink my own poison? Or am I the sort of man who would place his enemy in an impossible situation? Now, it might be sensible to imagine that I would be unsportsmanlike. But clearly, that cannot..."

"I'd rather rely on logic than psychological speculations," interrupted the Man in Black, feeling a growing coldness in his fingers. "But you seem not to have supplied me with enough information to make that possible."

“On the contrary,” cried Vizzini, “I’m giving everything away! Look at the backs of the cups!” And he twisted them around. On the back of the gold cup was engraved ‘This cup is from Sicily if, and only if, the silver cup is from Florin.’ On the back of the silver cup was engraved ‘This cup is from Sicily if, and only if, the gold cup is from Greenland.’ The Man in Black was glad that, in addition to the arts of navigation, piracy, mountaineering, and swordsmanship he had now studied intensely for many years, he had undertaken rigorous training in deductive logic. And he was relieved to recall that iocane powder leaves one unable to speak falsely for several hours, even if one is immune to its deadly effects. But he knew that, in less than a minute, he would lose the ability to reach for either cup.

Fragment 2

Westley: ... and I have been Roberts ever since. Except now that we’re together, I shall retire and hand the name over to someone else. Is everything clear to you?

Buttercup: Not yet. I just don’t see how you could trust a man – Ryan, I think you called him – after he’d lied to you so often. I mean, he’d given you a false name, and said he was probably going to kill you every morning. How could you even sleep with that fate hanging over you?

Westley: Well, I was quite worried at first, but some members of the crew tried to put my mind at ease right away, telling me that they knew Roberts... er, Ryan, as I know him now... meant me no harm. Others on the crew told me otherwise, but I soon came to understand that those ones were simply lying.

Buttercup: The crew members were lying to you?

Westley: All day long, I’m afraid. At least, some of them lied on some of the days. But it didn’t take that long to sort it all out. You see, each day, they would decide among themselves which would tell the truth and which would lie. One that had been decided, they would keep it up all day, either lying all the time or telling the truth all the time until they had gone to sleep. And the next morning, they would meet up secretly and decide who would lie and who would tell the truth on that day. Some of them switched more or less every day, while others stayed as liars or truth tellers for months at a time. One never knew what it was going to be.

Buttercup (narrowly avoiding a sudden fire with Roberts’ help): It really sounds dreadfully confusing. How did you ever figure out which were lying for the day and which were telling the truth?

Westley (continuing to slash away the vines blocking the path): Fortunately, it didn’t take me that long to come up with a few questions I could ask the crew every morning that would tell me whom I could trust and whom I couldn’t – and even when I knew my crewmates were lying, I was also able to get whatever information I needed from them. In fact, I could instantly learn the truth of whatever I was interested in, since the rest of the crew always answered my questions as well as they could. During those three years – three years and a bit, really – I kept a diary of who told the truth and who lied on each day, thinking the pattern of liars and truth-tellers might repeat itself: I mean, I thought there must come a day when each member of the crew would lie or tell the truth just as they already had on some

single day I had already spent with them. But they managed to avoid repeating any such pattern until there were no more new ones to try. Coincidentally, perhaps, that was on the same day that Ryan took me to his room and told me his great secret.

Buttercup: *What an extraordinary story. But what did you ask them each morning to figure out which ones were lying and which were telling the truth? And these crewmates: did they all... how many did you say there were?*

Westley: *I didn't say. But why don't you try to figure that out? I'd hate to spoil the fun for you.*

(Buttercup widens her eyes and nods, then immediately furrows her brow in a confused look. Turning, she falls with a shriek into a lightning sand pit).

Fragment 3

Westley demands the gate key. Yellin at first denies having such a key, but changes his tune when Inigo tells Fezzik to tear Yellin's arms off. "Oh, you mean *this* gate key," he quickly replies. "You may have it, but you won't know which gate to open without me. One leads safely into the main floor of the castle, and the other five lead to the various levels of the Zoo of Death that hides beneath it."

"We don't need you for that," says Inigo. "Now that we have your key, it won't take us long to try all six doors."

Yellin laughs. "No, not long at all, if there's anything left of you by the end. If you try the door that leads to Level Five, for instance, you'll have to contend with Prince Humperdinck's green speckled recluse – a cherished pet spider that makes its home quite near the handle of the door, in back. You'd never know it's there unless you were to disturb it by trying the handle. If you were unwise enough to do so, you'd find out why they say that, compared with the green speckled recluse, the black widow is a rag doll. And these signs you see above the six doors? They're not as helpful as they look, since only the one that leads to the main floor is correct."

"So all but one of the six signs has a lie written on it?"

"That's not such a terrible average when you consider that this system has kept us safe," replies Yellin. "But you see my point. This key may open the door to the castle, but you'll need my help if you want to get in safely, just as I need your help to ensure my safe return to Holland once the Prince discovers my betrayal. I'll need a thousand gold florins, please: Dutch guilders would be my preference, but I'll accept whichever you happen to have between you. Without that many gold coins to jog my memory, I'm afraid I won't be able to recall just which gate you should open."

At the words 'jog my memory,' Inigo sees in a flash – but still too late – what's about to happen. Before

he can shout out his warning, Fezzik delivers Yellin a blow that leaves him quite unconscious and mostly dead. There is no time for another trip to Miracle Max, and the three adventurers have no more gold coins, anyway. Instead, they must rely on Westley's logical skills to make their way inside the castle in time to prevent the wedding and rescue Buttercup. The gates are all helpfully marked with letters (A to F from left to right), and the signs above them read as follows:

Sign over Gate A: *This gate and Gate E lead to Levels 4 and 5 of the Zoo of death, in some order.*

Sign over Gate B: *Gate F does not lead to the main floor of the castle.*

Sign over Gate C: *No gate to the left of this one leads to Level 4 of the Zoo of Death*

Sign over Gate D: *This gate leads either to Level 1 or Level 3 of the Zoo of Death.*

Sign over Gate E: *This gate leads to the main floor of the castle.*

Sign over Gate F: *Gate D does not lead to the main floor of the castle or to Level 3 of the Zoo of Death.*

Westley, thanks to his extensive training in logical thinking, figures out a trick for solving the problem quickly. Inigo opens the door he indicates, and they make their way to the main floor just as Prince Humperdinck demands that the Impressive Clergyman rush to the end of the wedding ceremony.