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1. “When Bach sent a copy of his Musical Offering to the King, he included a dedicatory letter, which is of interest for its prose style if nothing else rather submissive and flattersome. From a modern perspective it seems comical. Also, it probably gives something of the flavor of Bach's apology for his appearance” (Page 14).
2. “The ten canons in the Musical Offering are among the most sophisticated canons Bach ever wrote. However, curiously enough, Bach himself never wrote them out in full. This was deliberate. They were posed as puzzles to King Frederick.” (Page 16).
3. “The idea of a canon is that one single theme is played against itself. This is done by having "copies" of the theme played by the various participating voices.” (Page 16).
4. “Notice that every type of "copy" preserves all the information in the original theme, in the sense that the theme is fully recoverable from any of the copies. Such an information preserving transformation is often called an isomorphism, and we will have much traffic with isomorphisms in this book.” (Page 17).
5. “All in all, the Musical Offering represents one of Bach's supreme accomplishments in counterpoint. It is itself one large intellectual fugue, in which many ideas and forms have been woven together, and in which playful double meanings and subtle allusions are commonplace.” (Page 18).
6. “In this canon, Bach has given us our first example of the notion of Strange Loops. The "Strange Loop" phenomenon occurs whenever, by moving upwards

(or downwards) through the levels of some hierarchical system, we unexpectedly find ourselves right back where we started.” (Page 18).

7. “Implicit in the concept of Strange Loops is the concept of infinity, since what else is a loop but a way of representing an endless process in a finite way? And infinity plays a large role in many of Escher's drawings” (Page 23).
8. “All consistent axiomatic formulations of number theory include undecidable propositions.” (Page 25).
9. “In this pearl it is hard to see a Strange Loop. That is because the Strange Loop is buried in the oyster-the proof. The proof of Godel's Incompleteness Theorem hinges upon the writing of a self-referential mathematical statement, in the same way as the Epimenides paradox is a self-referential statement of language.” (Page 26).
10. “In the Godel Code, usually called "Godel-numbering", numbers are made to stand for symbols and sequences of symbols.” (Page 26).

## Introduction to Three Part Invention

This portion is a conversation between Achilles, a Tortoise, and Zeno, about a very strange paradox. They speak at length about less relevant things, such as the weather, but the core of their discussion is focuses on the impossibility of what is right in front of them. It begins with Achillies and the Tortoise spying a flag, which contains a design from Escher. Since Escher’s drawings are not physically representable, and are yet to be invented at the time of the story, the flag’s existence is patently impossible. Yet, it is still there. After this, Zeno, a Greek philosopher,

comes along, and joins in their conversation about Zeno's paradox. Zeno's paradox, in essence, states that Achilles could never catch a Tortoise if the Tortoise had a head start, since first Achilles would have to close half the gap, then half the gap again, and half of that gap, never actually reaching the tortoise. Thus, motion is patently impossible, yet Achilles can indeed outrun a Tortoise, or so we presume. The conversation, and this portion of the novel, ends just before Achilles and the Tortoise begin their race.