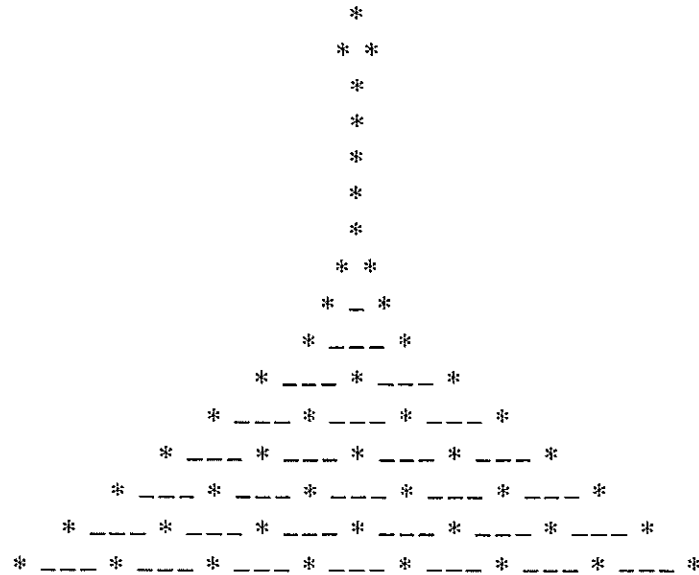


FIGURE 42. "Grab Canon", by M. C. Escher (~1965).



Crab Canon

*Achilles and the Tortoise happen upon each other
in the park one day while strolling.*

Tortoise: Good day, Mr. A.

Achilles: Why, same to you.

Tortoise: So nice to run into you.

Achilles: That echoes my thoughts.

Tortoise: And it's a perfect day for a walk. I think I'll be walking home soon.

Achilles: Oh, really? I guess there's nothing better for you than walking.

Tortoise: Incidentally, you're looking in very fine fettle these days, I must say.

Achilles: Thank you very much.

Tortoise: Not at all. Here, care for one of my cigars?

Achilles: Oh, you are such a philistine. In this area, the Dutch contributions are of markedly inferior taste, don't you think?

Tortoise: I disagree, in this case. But speaking of taste, I finally saw that *Crab Canon* by your favorite artist, M. C. Escher, in a gallery the other day, and I fully appreciate the beauty and ingenuity with which he made one single theme mesh with itself going both backwards and forwards, But I am afraid I will always feel Bach is superior to Escher.

Achilles: I don't know. But one thing for certain is that I don't worry about arguments of taste. *De gustibus non est disputandum.*

Tortoise: Tell me, what's it like to be your age? Is it true that one has no worries at all?

Achilles: To be precise, one has no frets.

Tortoise: Oh, well, it's all the same to me.

Achilles: Fiddle. It makes a big difference, you know.

Tortoise: Say, don't you play the guitar?

Achilles: That's my good friend. He often plays, the fool. But I myself wouldn't touch a guitar with a ten-foot pole!

(Suddenly, the Crab, appearing from out of nowhere, wanders up excitedly, pointing to a rather prominent black eye.)

Crab: Hallo! Hulloo! What's up? What's new? You see this bump, this lump? Given to me by a grump. Ho! And on such a fine day. You see, I was just idly loafing about the park when up lumbers this giant fellow from Warsaw—a colossal bear of a man—playing a lute. He was three meters tall, if I'm a day. I mosey on up to the chap, reach skyward and manage to tap him on the knee, saying, "Pardon me, sir, but you are Pole-luting our park with your mazurkas." But WOW! he had no sense of humor—not a bit, not a wit—and POW!—he lets loose and belts me one, smack in the eye! Were it in my nature, I would crab up a storm, but in the time-honored tradition of my species, I backed off. After all, when we walk forwards, we move backwards. It's in our genes, you know, turning round and round. That reminds me—I've always wondered, "Which came first—the Crab, or the Gene?" That is to say, "Which came last—the Gene, or the Crab?" I'm always turning things round and round, you know. It's in our genes, after all. When we walk backwards, we move forwards. Ah me, oh my! I must lope along on my merry way—so off I go on such a fine day. Sing "ho!" for the life of a Crab! TATA! ¡Olé!

(And he disappears as suddenly as he arrived.)

Tortoise: That's my good friend. He often plays the fool. But I myself wouldn't touch a ten-foot Pole with a guitar!

Achilles: Say, don't you play the guitar?

Tortoise: Fiddle. It makes a big difference, you know.

Achilles: Oh, well, it's all the same to me.

Tortoise: To be precise, one has no frets.

Achilles: Tell me, what's it like to be your age? Is it true that one has no worries at all?

Tortoise: I don't know. But one thing for certain is that I don't worry about arguments of taste. *Disputandum non est de gustibus.*

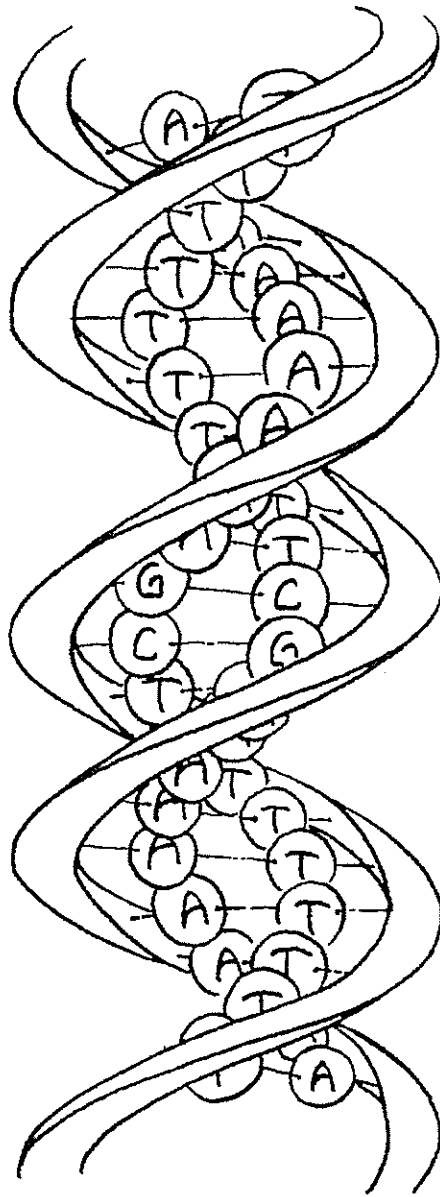


FIGURE 43. Here is a short section of one of the Crab's Genes, turning round and round. When the two DNA strands are unraveled and laid out side by side, they read this way:

... TTTTTTTTTTCGAAAAAAAAA ...
 ... AAAAAAAAAAGCTTTTTTTT ...

Notice that they are the same, only one goes forwards while the other goes backwards. This is the defining property of the form called "crab canon" in music. It is reminiscent of, though a little different from, a palindrome, which is a sentence that reads the same backwards and forwards. In molecular biology, such segments of DNA are called "palindromes"—a slight misnomer, since "crab canon" would be more accurate. Not only is this DNA segment crab-canonical—but moreover its base sequence codes for the Dialogue's structure. Look carefully!

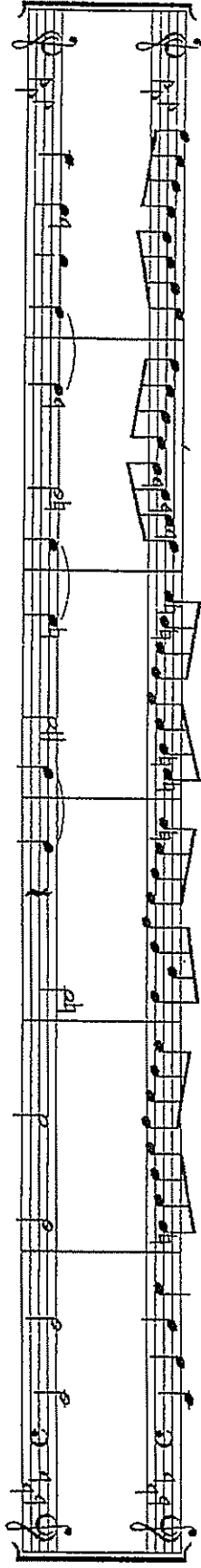
Achilles: I disagree, in this case. But speaking of taste, I finally heard that *Crab Canon* by your favorite composer, J. S. Bach, in a concert the other day, and I fully appreciate the beauty and ingenuity with which he made one single theme mesh with itself going both backwards and forwards. But I'm afraid I will always feel Escher is superior to Bach.

Tortoise: Oh, you are such a philistine. In this area, the Dutch contributions are of markedly inferior taste, don't you think?

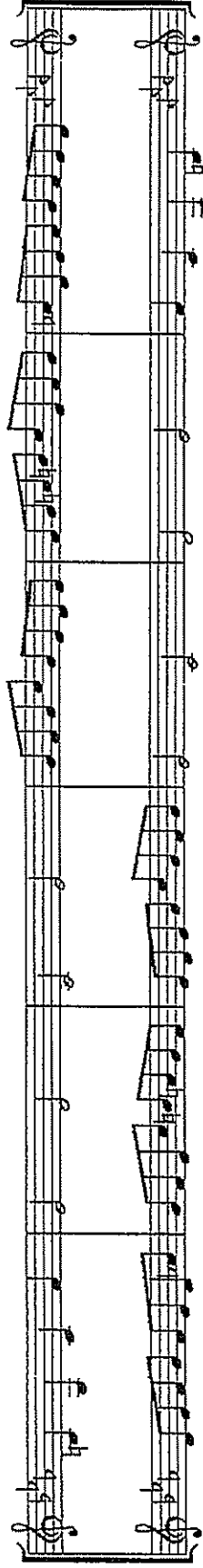
Achilles: Not at all. Here, care for one of my cigars?

Tortoise: Thank you very much.

Achilles: Incidentally, you're looking in very fine fettle these days, I must say.



CRAB CANON JSB



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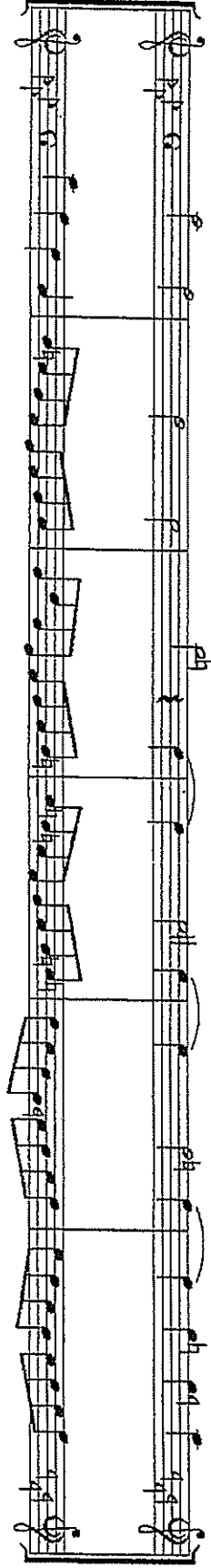


FIGURE 44. Crab Canon from the Musical Offering, by J. S. Bach. [Music printed by Donald Byrd's program "SMUT".]

Tortoise: Oh, really? I guess there's nothing better for you than walking.
Achilles: And it's a perfect day for a walk. I think I'll be walking home soon.
Tortoise: That echoes my thoughts.
Achilles: So nice to run into you.
Tortoise: Why, same to you.
Achilles: Good day, Mr. T.

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