



Observations of the Owl (42)

Bye Bye, Bioinformatics

I have a problem. You see, the majority of my dearest feathered friends are what we call “small-eyers”, which means they cannot fly and hunt in the dark as “big-eyers” like me do. The question, therefore, is: When is the best time to have a chat with my day-active bird friends?

Just take yesterday’s example. Contentedly pruning myself and preparing for my well-earned day’s

sleep, Goshawk suddenly swooped down right next to me on my branch – well-rested, excited and full of energy. Pleased to see him, I nevertheless failed to stifle a yawn.

“Hey Owl! Have you already heard? The humans have discovered another type of your owl fellows. Just read about it yesterday in their *PLoS ONE* journal. *Otus jolandae* they’ve named it; lives mainly in Indonesia.”

“Yes, I’ve heard about it,” I replied. “Always sounds funny when they ‘find’ a ‘new species’ that you’ve already known about yourself for ages. But I don’t know any of the details.”

“Well, they recorded the calls and sounds – and thereby realised that *Jolandae* communicate with each other, using songs that are completely different from those of other owls.”

I raised my eyebrows (metaphorically speaking – as we certainly don’t *have* eyebrows), “Just that? No sequencing, no genome comparison? I thought that humans had completely turned face, to rely only on genomics and bioinformatics for these kinds of studies.”

Bioinformatics. That was the keyword for Goshawk, who works as a computer scientist for the avian software giant, *Grapple*. “No, nothing of it,” he almost screeched. “And you know all too well that I wouldn’t even have paid this study the faintest attention, were it only to do with bioinformatic sequence comparison and such stuff.”

“Yes, yes – relax, my friend,” I replied. “I do know that you don’t have a good word left over for bioinformatics.” Although I was really tired, I was fully aware of the sleeping monster I was about to awaken with the next sentence that had already formed in my head... Nevertheless, I opened my beak and “pushed the button”. “But you have never told me *why*...”

“Really?” his voice calmed down and instantly became very dark and grim. “So you didn’t know that I myself once worked in that miserable scientific swamp called *b-i-o-i-n-f-o-r-m-a-t-i-c-s*?” Practically spitting out the last characters in disdain.

“No,” I responded, “I didn’t know that.”

“It was the first thing I did after my PhD in Computer Science. You know, the sequencing business was just exploding at that time. And everybody proclaimed that all those mountains of data and corresponding insights would change our world dramatically and very soon. The molecular biologists themselves, however, didn’t know how to handle this kind of data. And that’s why they urgently cried out for mathematicians and program-

mers to magically extract the science from their floods of what they called ‘results’.”

“And you followed their cries?”

“Yes, I did. Everything sounded so grand – and I was young and just wanted to become part of it.”

“So what was the problem then?”

“Well, I came to a group of molecular biologists and the boss, Prof. Hornbill, only explained to me that he’d need a big database where huge numbers of sequence results could be entered, organised, searched and compared as quickly as possible. Of course, I asked him what the *theory* behind that task was; what was the *science* – because with a solid theory I certainly would be able to create much better software. But nothing of any substance came back. In nebulous phrases, Hornbill just stated that first the data had to be organised and that then any subsequent analysis would automatically yield *something*, perhaps even a theory.”

“Sounds bizarre,” I agreed.

“What was the theory behind that task; what was the science?”

“It was. Anyway, after a fashion, I started building such a database and at every crossing I more or less had to guess, which way was best to fly. Finally, the database was in-

deed able to organise mountains of data and even construct pretty graphs or trees from them. But the biologists didn’t tell me anything about the actual *quality* of the results. ‘Yeah, we can draw some qualitative conclusions’, was Hornbill’s usual answer.”

“They didn’t know any better themselves, obviously.”

“You are so right! What happened was that everyone from the group annotated their data by searching the database – and immediately submitted the results. Ten papers were accepted in that way with my name on them – but don’t ask me how, since six of them later turned out to be plain wrong! Mostly, the resulting trees suggested relationships between taxa, which were simply impossible due to earlier data from other fields, such as palaeobiology. And stupid Hornbill *et al.* – as well as the reviewers, to my surprise – hadn’t paid heed to any of that evidence!”

“So, your software was useless.”

“Well, not quite. But I nevertheless left the field, deeply frustrated. I mean, my name on six wrong papers? Come on, I had no choice...!”

“And so you became a bioinformatics-hater because you came across a bunch of poor scientists?”

“Yes, although I know that bioinformatics can definitely make real discoveries. I also know, though, that I’m by far not the only victim of such a lack of understanding and cooperation between biologists and programmers. But now I’ve worked myself up an appetite...”

With these closing words Goshawk took off for breakfast. And before the branch had stopped rocking, I had fallen fast asleep.

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