Scientific Communication for Physicists Homework 1 — due 16/04/2025

1) Academese and word choice

Pick any published astro/phys paper (could be something you have read recently, a recent paper from arXiv, etc.) and find at least three examples of “academese” and poor word choice we discussed in Lecture 2. Provide editing suggestions.

I choose "Metallicity calibrations based on auroral lines from PHANGS–MUSE data (Brazzini et al. 2024)". It is available at https://www.aanda.org/articles/aa/full_html/2024/11/aa51007-24/aa51007-24.html.

Here are some academese:

1. Section 1. "Another important source of uncertainty concerns the calibration dataset."

The phrase "important source of uncertainty concerns" is a bit abstract and vague.

They may simply say: "The calibration dataset itself introduces significant uncertainties as well."

2. Section 2.2. "For this reason, we tried to avoid using the [O iii]λ4363 auroral line present in all the other catalogues."

The phrase "tried to avoid using" is unnecessarily weak and could be stated more clearly.

They may simply say: "Therefore, we avoid using the [O iii]λ4363 auroral line present in all the other catalogues."

3. Section 6. "We carried out a selection procedure that aimed to select without any prior bias the brightest sources of the catalogue, then we exploited the measured line fluxes to estimate the electron temperatures and densities, and hence the ionic abundances."

Redundant phrasing: "carried out a selection procedure" and "aimed to select" are repetitive.

They may simply say: "We selected the brightest sources from the catalogue without any prior bias, then we exploited the measured line fluxes to estimate the electron temperatures and densities, and hence the ionic abundances."

2) Subject — Verb — Object placement

Rewrite the following sentences such that the subject is followed immediately by the verb and interruptions between the verb and object are avoided. Place the subject early in the sentence if possible.

1. To date, more than 1,000 exoplanets, some of them with orbits of just a few hours, others with orbits of more than 1,000 years, have been confirmed.

To date, more than 1,000 exoplanets have been confirmed. Some of them orbit in just a few hours, while others take more than 1,000 years.

2. Onchocerciasis, with approximately 18 million infected cases worldwide and 80 million more people at risk of infection, is not recognized as one of the major public health and socioeconomic problems in many tropical countries (Murdoch et al., 1996; OEPA, 1998).

Many tropical countries do not recognize onchocerciasis as one of the major public health and socioeconomic problems, despite approximately 18 million infected cases worldwide and 80 million more people at risk of infection.

3. Aside from protein X, protein Y, with a sequence very similar to a DNA-binding kinase, has been found to be able to bind RNA.

Aside from protein X, protein Y has been found to be able to bind RNA and has a sequence very similar to a DNA-binding kinase.

4. Earth’s primordial atmosphere, consisting of high levels of helium and neon, which are now only present in high quantities in the innermost mantle and core of the Earth, was blown off several times after catastrophic impacts with other space bodies.

Earth’s primordial atmosphere consists of high levels of helium and neon and are now only present in high quantities in the innermost mantle and core of the Earth; it was blown off several times after catastrophic impacts with other space bodies.

5. Recent reports show that digital disease detection systems, which use big data sources for information and can lead to early predictions of disease outbreaks, health behaviour, and attitudes (4, 7, 8), heavily draw on mobile devices and online sharing platforms.

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