Words to avoid when writing

AR:
Writing is important. Duh. You should learn to write well. Duh. The problem is that a lot of guides for scientific writing tend to give general principles rather than specifics that one can use to improve. In that spirit, here are a set of words and phrases that I personally think are evidence of bad writing. The idea is to search for these in your writing and then replace as per the examples.

An important point to keep in mind is that much like Steve Jobs said “Design is not how something looks, but is about how something works”, writing well is not just a matter of style, but often a matter of substance. Consequently, in correcting your writing by replacing these words, you may end up having to think more carefully about what you say and what it means. Which is a good thing!

Anyway, here’s the list. And please don’t tell me about all the examples of these bad words in my own writing. I’m a life-long learner! :)

Words not to use:

- Studies:
    - “Several **studies** showed that splicing is largely co-transcriptional…” Not too terrible, but could be better. Here, the use of “studies” is vague because it doesn’t say anything about these “studies”. What did they do? Better to impart some more specificity: “Biochemical fractionation followed by nascent RNA sequencing showed that splicing…”
- Study:
    - “We wanted to **study** the localization of splicing cofactors.” This use of “study” is pretty typical towards the beginning of a paragraph in the results section. In this usage, it’s a crutch for avoiding saying *why* you performed said “study”. Why did we study the localization? State the question, which may require two sentences: “We wondered whether splicing cofactors were required for splicing to occur at the speckle. We thus measure the location of these cofactors simultaneously with their unspliced RNA targets to reveal…”
- This:
    - “Our assay revealed that some targets were spliced locally and some were spliced distally. **This** suggests that local splicing is not a universal property.” Here, “this” is used without specifying what “this” refers to. In some cases, such a construction is ambiguous (which is why some journal style guides disallow this), although in this case it is pretty obvious what it means. However, even then, it’s an opportunity to provide specificity: “This difference between targets suggests that local splicing is not a universal property.”
- Complicates:

    - "This makes it difficult to determine if the isolated RNA was actually being transcribed by the polymerase, and **complicates** the interpretation that splicing is therefore happening co-transcriptionally." In this case, “complicates” is very vague. How does it complicate the interpretation, specifically? What is the interpretation? Try: “This *contamination* makes it difficult to determine if the isolated RNA was actually being transcribed by the polymerase, or was rather just in the close physical proximity of the DNA. Thus, it is difficult to rule out the possibility that this RNA is not actually spliced post-transcriptionally rather than while the process of transcription is ongoing.”
    - "However, single cell sequencing and imaging has revealed a variety of cellular phenotypes at the RNA level, even within seemingly identical populations of cells (ref **). This heterogeneity **complicates** results from bulk assays, and suggests that there is some underlying reason why genetically identical and environmentally similar cells have differences in gene expression." *same as above.
- Understand/examine/investigate/dissect:
    - “We wanted to **understand/examine/investigate/dissect** how the order of splicing affected the location of pre-mRNA splicing intermediates.” Understand and examine are often used as a placeholder for the question being asked. What, specifically, is it that we want to understand? To wit: “We wondered whether splicing the first intron before the second intron resulted in the first intermediate being more dispersed…”
- Modulate:
    - “The addition of retinoic acid **modulated** the expression of Hox genes.” Do you mean to say changed? Then just say changed. Or, just give the directionality explicitly: “The addition of retinoic acid receptor increased the expression of the HoxA gene cluster but decreased the expression of the HoxC gene cluster.”
- Coupled/linked
    - “We think the ECM modifications are **coupled/linked** to cellular migration.” Vague. What does it mean to be “coupled”? Often coupled is used as vague-speak for “affects”. If you want to say “The migration of cells can affect ECM modifications”, then just say that. Or, better, explicitly describe the feedback: “Migratory cells can modify the ECM by depositing XYZ, which can in turn affect migration by activating ABC.”
- Interacting: see above about coupled.
- Architecture:
    - “We want to understand the **architecture** of human genetic diseases.” A pretty irritatingly vacuous statement. What exactly is this supposed “architecture” we are looking to “understand”. To be more precise, suppose we somehow did “understand” the “architecture”. What would it actually look like? Then just say that.
- issue
- Unclear:

    - “Additionally, **it is unclear** how multiple signals may combine their effects at the level of chromatin accessibility itself.” *It is unclear* is vague: it more often points to the existence of a question than actually posing a question. Better: “Additionally, multiple signals may combine their effects by either affecting accessibility at sites independently of each other or via extensive interactions between sites.”
- At the level of:
    - “It is also unclear how multiple signals combine their effects **at the level of** transcription factor binding activity at cis-regulatory elements.” *At the level of* allows one to write about something non-specifically, because it says “I’m talking about X, now you figure out how it applies to Y on your own”. Ditto for “heterogeneity at the single cell level”: what precisely do we mean? If you mean “variability in XYZ from cell to cell”, then just say that. Often, it can just be straightforwardly cut out: “It is also unclear how multiple signals *coordinately affect* transcription factor binding activity at cis-regulatory elements.”
- Relationship:
    - “We wondered what the **relationship** was between the state of individual GFP-positive cells and their ultimate fate.” Missed opportunity. What are hypotheses for what the “relationship” might be? Better: “We wondered whether the expression of specific transcription factors in individual GFP-positive cells predicted their fate upon stimulus.”
- Interplay:
    - “We wanted to *understand* the **interplay** between transcription and splicing.” (Bonus crummy use of “understand”.) What exactly is this interplay? Just describe it explicitly. Say: “We wondered whether spliced RNA transcribe more quickly than unspliced RNA.” Or whatever it is you actually meant by “interplay”.
- Determine can be bad.
    - We also employ a combination of RNA FISH and expansion microscopy to determine what is happening to newly synthesized RNA immediately after the process of transcription is completed, and see that transcripts dwell at the site of transcription and that they appear to be untethered to the site of transcription
- Dynamics.
    - I freaking hate the word dynamic. In its original form, meaning something that changes over time, it’s great. The problem is that it’s used as a blanket term for papering over confusing results. Huh, activating this transcription factor didn’t change the target gene’s expression? Must be because the binding is “dynamic”, right? THAT MAKES NO SENSE!
- Assess:
- “We wanted to assess the impact of adding retinoic acid to the cultured fibroblasts”. Vague. Just say what you wanted to measure explicitly. “We wanted to measure changes in migratory potential upon the addition of retinoic acid to the cultured fibroblasts.”
    - Super

- Interrogate the mechanism
- insight(s)