

# Writing Workshop #3: Making Verbs Work

“Verbs provide the momentum of writing” – Celia Elliott



Proper verb choice is the difference between awkward and bloated writing and crisp, direct narrative in scientific writing (see Celia’s lecture on [Making Verbs Work](#))

## (1). Replace weak verb phrases with strong “action” verbs

### Weak verb phrases

performed a measurement

made a determination

Conducted an analysis

### Strong verbs

measured

determined

analyzed

## (2). Avoid weak “is” verb phrases; use “is” only to define or equate

### Weak verb phrases

is beginning

is used to control

### Strong verbs

begins

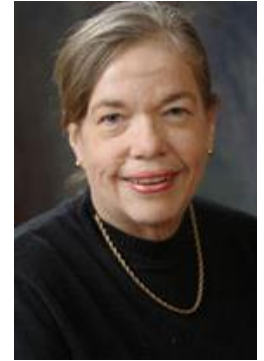
controls

## (3). Maintain subject-verb agreement

“**One** of the experiments **were** completed” *should be* “One of the experiments **was** completed”

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(4). Avoid starting sentences/clauses with indirect phrases (“there are” or “it is”) – make the main idea the subject of the sentence for directness:

“There were several methods used to produce metal substrates...”  
*should be* “Metal substrates were produced by...”

(5). Use parallel construction of verbs for clarity

“Future experiments include *stopping* antiprotons with a new detector and *observation of* antiprotons in a cloud chamber”  
*should be*

“Future experiments include *stopping* antiprotons with a new detector and *observing* antiprotons in a cloud chamber”

## Writing Workshop #3 Debrief: Making Verbs Work

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**Original:** Scaling functions for both gauge-invariant and non-gauge invariant quantities across topological transitions of noninteracting fermions driven by the non-Abelian gauge potentials on an optical lattice **have also been derived.**

**One Solution:** Scaling functions **have also been derived** for both gauge-invariant and non-gauge invariant quantities across topological transitions of noninteracting fermions driven by the non-Abelian gauge potentials on an optical lattice.

**Comment:** Put the action (i.e., verb) at the beginning of the sentence

**A Slightly Better Solution:** Scaling functions **were also derived** for both gauge-invariant and non-gauge invariant quantities across topological transitions of noninteracting fermions driven by the non-Abelian gauge potentials on an optical lattice.

**Comment:** Use past tense rather than “present perfect” tense, because action was completed in the past.

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**Original:** Magnetothermoelectric phenomena, e.g., the tunneling magneto-Seebeck effect, which occurs in magnetic tunnel junctions (MTJs) and manifests the dependence of the charge Seebeck coefficient on the magnetic alignment of the magnetizations of the two layers sandwiching the thin barrier layer, was demonstrated by experiment and explained by first-principles calculations.

**One Solution:** Magnetothermoelectricity, e.g., the tunneling magneto-Seebeck effect, was demonstrated experimentally and modeled with first-principles calculations. This phenomenon occurs in magnetic tunnel junctions (MTJs) and manifests the dependence of the charge Seebeck coefficient on the magnetic alignment of two layers sandwiching a thin barrier layer.

**Comment:** Put the action (i.e., verb) at the beginning of the sentence; break long sentences into multiple sentences; watch the use of “by”

## Writing Workshop #3 Debrief: Making Verbs Work

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**Original:** By solving the time-dependent Schrödinger equation in an extensive field parameter range, it is revealed that highly nonresonant dissociation channels can dominate over ionization.

**One Solution:** Solving the time-dependent Schrödinger equation in an extensive field parameter range reveals that highly nonresonant dissociation channels can dominate over ionization.

**Comment:** Replace wordy “verb phrases” with verbs

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**Original:** The quasilinear development of the modulational instability of a partially coherent wave in a dispersive and nonlinear medium **is analyzed.**

**One Solution:** A partially coherent wave in a dispersive and nonlinear medium **is analyzed** as it develops a quasilinear modulational instability.

**Comment:** Put the subject at the beginning of a complex sentence; put the action (i.e., verb) at the beginning of the sentence

## Writing Workshop #3 Debrief: Making Verbs Work

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**Original:** Transport properties of the Fermi atoms in a trap **was** studied by increasing collisional rate **with adding bosons** to the system and by tuning the interaction strength.

**One Solution:** Transport properties of Fermi atoms in a trap **were** studied **by adding** bosons to increase the collisional rate of the system and **by tuning** the interaction strength.

**Another Solution:** Transport properties of Fermi atoms in a trap **were** studied **by tuning both** the collisional rate and the interaction strength of the system.

**Comment:** Watch plural subject and verb agreement; watch parallel structure of verb forms in lists; decide how much detail you need to convey and simplify the sentence accordingly