

## Writing Workshop #4: Avoiding Ambiguous Pronouns

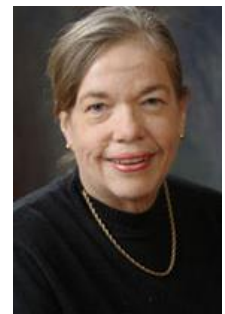
In general, a pronoun should refer to the noun immediately preceding it. When multiple nouns precede the pronoun, the reader can be confused as to which noun a pronoun such as “it” and “this” refers

Here’s an example:

“In some pellet designs, the average ionic charge,  $Z$ , and the laser intensity,  $I$ , are large enough that the distribution function is predicted to be non-Maxwellian. **This** has important consequences: reduction of the absorption rate, electron flux, and modification of the continuum x-ray rates.”

What does “**This**” refer to in this sentence? The pellet design,  $Z$ ,  $I$ , the non-Maxwellian distribution?

“Always follow ‘this’ (and every other indefinite pronoun {‘it’, ‘that’, etc.}) with a clarifying noun that tells the reader what ‘this’ you are referring to.” – Celia Elliott



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**Original:** We present an *ab initio* description of the thermal transport phenomenon called the spin Nernst effect. It refers to generation of a spin accumulation or a pure spin current transverse to an applied temperature gradient. This is similar to the intensively studied spin Hall effect described by intrinsic and extrinsic mechanisms due to an applied electric field.

**One Solution:** We present an *ab initio* description of the thermal transport phenomenon known as the spin Nernst effect, **which** refers to generation of a spin accumulation or a pure spin current transverse to an applied temperature gradient. This **effect** is similar to the intensively studied spin Hall effect, **which is** described by intrinsic and extrinsic mechanisms **arising from** an applied electric field.

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**Original:** In addition to the bending stiffness and the stretching elasticity, the existence in the gel state of a lipid bilayer of a nonzero shear modulus is likely to generate specific deformations and new vesicle shapes. This was indeed observed in the model of coupled bilayer cytoskeleton proposed in [7–9] for red blood cells, and in the buckling instability that occurs under large local external forces on actin-coated [10] and on gel-phase vesicles [11].

**One Solution:** In addition to the bending stiffness and the stretching elasticity, a lipid bilayer of a nonzero shear modulus is likely to generate specific deformations and new vesicle shapes **in the gel state. Such deformations were indeed predicted** in the model of coupled bilayer cytoskeleton proposed in [7–9] for red blood cells, and in the buckling instability that occurs under large local external forces on actin-coated [10] and on gel-phase vesicles [11].

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**Original:** We find that the dominant contributions to the Aharonov–Bohm conductance oscillations in the subgap transport are of period  $h/2e$  in retroconfiguration and of period  $h/e$  in specular configuration, confirming the predictions obtained from a qualitative analysis of interfering scattering paths. Because of the robustness against disorder and moderate changes to the system, this provides a clear signature to distinguish both types of Andreev reflection processes in graphene.

**One Solution:** We find that the dominant contributions to the Aharonov–Bohm conductance oscillations in the subgap transport are of period  $h/2e$  in retroconfiguration and of period  $h/e$  in specular configuration, confirming the predictions obtained from a qualitative analysis of interfering scattering paths. **The different oscillation periods provide** a clear signature to distinguish both types of Andreev reflection processes in graphene.