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## Ms. Particular Presents: Envelop vs. Envelope

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These brief “lessons” are designed to address common mistakes in English usage and to administer instruction in small doses.

**“Envelop” is a verb that means  
“to surround”  
“Envelope” is a noun that means  
“a container, cover, or wrapper”**



Figure 1. The arrow envelops the envelope.

**Mnemonic: remember to lop  
the e off the end of the verbe!**

N.B. “Envelope” has a specific connotation in different scientific disciplines:

In mathematics, an *envelope* of a family of curves in a plane is a curve that is tangent to each member of the family at some point.

In molecular biology, an *envelope* is a lipoprotein unit membrane that forms the outer layer of some virions.

In engineering, the *envelope* is a set of performance limits (as of an aircraft or an automobile) that may not be safely exceeded, or the set of operating parameters that exists within these limits.

“Envelope” is often used figuratively in physics to describe a structure that surrounds another. Here are some examples from PRL:

“Solid lines show the electrons’ density at a given time, broken lines are the initial density of the electrons (namely, the ions’ density), and dotted lines represent the laser envelope.” PRL **106**, 134801 (2011).

“The full width at half maximum of the pulse train envelope can be estimated to be on the order of 10–12 fs, which would contain 8–10 attosecond pulses.” PRL **106**, 123601 (2011).

“Envelope” can also be used as an adjective, meaning “envelope-like”:

“To model the electronic states, we use the envelope function approximation and coordinates as in Fig. 1.” PRL **106**, 086801 (2011).