**Donald Secreast**

# Physics for English Majors: How to Construct a Death Ray for Generalities

Of all the unnatural acts we English teachers ask students to perform, the one request considered most grotesque by students is to write literary analysis. In contrast, the writing assignment students find least painful is the personal essay. As students become more proficient in this particular form, they do perhaps refine their personal voice and learn how best to present details from their experiences. Eventually, when students move from basic composition to an introductory literature course, they might find themselves in a writing situation which still allows them to mine the "creative" vein of their writing. Often, assignments in literature classes can be designed to encourage the student to respond to literature in a creative rather than an analytic way. Frequently, a student garners extra praise by responding to a poem with a poem, to a short story with a short story.

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On a certain level, we should be grateful as long as a student is 1) responding at all to a piece of literature, and 2) engaging in any kind of writing activity. Certainly, most English teachers want to see students get pleasure out of reading and writing. In this regard, literature is still very much an idealistic major. For many people who become English majors, their choice has been prompted by some story or poem or play or novel that gave them such profound pleasure they wanted to follow it into a way of life. However, deriving pleasure from reading is not the defining activity of a dedicated English major. As specialists in language and literature, English majors must demonstrate a *technical understanding* of literature and language, of their structures, their mechanics. The essential route to this understanding is analysis. Viewed from the angle of self-indulgence, analysis is the opposite of pleasure. However, in the case of literature, the opposite of pleasure is not necessarily pain but discipline. In the case of literature, discipline implies structure and pattern, method and process, focus and subordination.

At some point in their evolution as English majors, students need to confront this "discipline" of their chosen field. Perhaps somewhere between completing their general education courses and beginning their major courses, they need to confront the unique demands their discipline will make upon them. Otherwise, they will find themselves in a senior level English class, completely unprepared to meet a text on its own terms. At this point, literature becomes, quite often, a source of anxiety rather than a source of pleasure. To blame this fall from the joys of literature on the outdated attitudes and crusty pedagogies of unsympathetic teachers really does the students no service and fails to address the important role literary analysis plays in understanding literature.

More likely, the students' anxiety results from a fear of the unknown. Most of them

reach their senior year without having been told what analysis really is. In exploring why students are so reluctant to fully engage in analysis, I prefer to work on the assumption that some personalities who find themselves attracted to the arts simply have an instinctual mistrust of analysis. We can call this attitude Analysis Aversion Syndrome (AAS). In one of the specific arts such as literature, AAS manifests itself as Fear of Textual Intimacy (FTI). Teachers who suffer from FTI experience extreme discomfort when faced with explaining the rudiments of analysis. But analysis does need to be explained—and explained in terms that recognize how alien it is to the college students' involvement in the rest of the world but also in terms that help concretize perhaps the most abstract, vital activity of the liberal arts mind.

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As an introduction to literary analysis and to give students a concrete image of analytical thought, I turn to the world of physics. At first, this appeal to a scientific discipline troubles my English majors. A very valid question most English teachers might ask is "Why privilege the scientific model?" As a general rule, the typical English major chose literature over science and math because those disciplines represent the torture chamber in the gothic castle of education. However, referring to a discipline like physics forces English majors out of their intellectual comfort zone and operates as an effective tool for confronting students with their fear of analysis (Amplifying the English major's fear of the unknown is the Prufrockian paranoia over "The eyes that fix you in a formulated phrase." For an English major nurtured by British and American Romanticism, having such eyes is as unsettling as being formulated by such eyes.).

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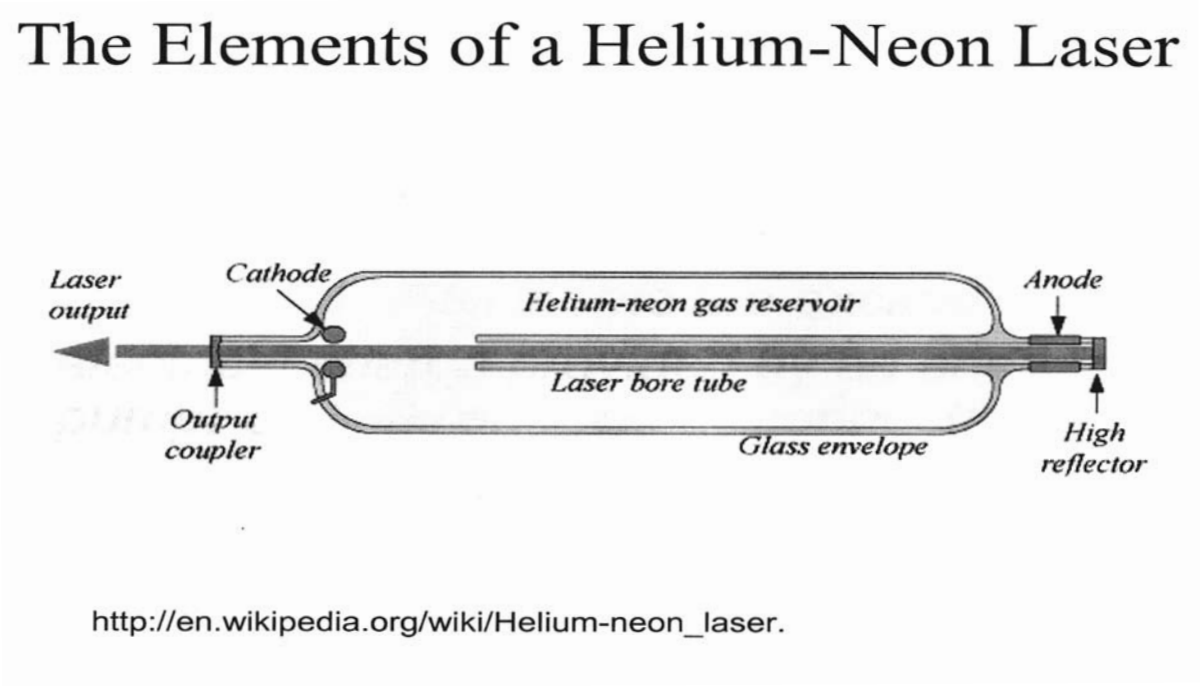
What I emphasize when I first ask English majors to think of themselves briefly as physicists is to accept that analytical thought must be focused. The fundamental effect of this focus is to provide stimulation for the author and a sympathetic stimulation for the reader. A more straightforward way of communicating this simplest characteristic of analytical thought is to say that analytical thought is stimulated thought. Now at least, an English major no longer faces an unknown and formless concept. All the students face is the task of learning how to stimulate their thought.

At this point, most of the strategies of basic composition provide little help. A student can sit at a computer for hours freewriting




and never achieve a stimulated state. He or she might—looping, grouping, clustering, and cubing—conceive a long and interesting string of details, but as important as good details are to personal essays, they cannot be counted on to provide the necessary mental energy required to elevate perception to insight. On a good day, and with expert prodding from a teacher, normal expository writing can be compared to shining a flashlight on a subject. In analytical writing, though, the student strives to switch on a laser.

One of the easiest lasers to use as a model for analytical thought is the Helium-Neon Laser because it's a rather simple design and most readily conforms to being used as a simile. Although the simple design of the Helium-Neon Laser can be drawn on a blackboard in just a few seconds, I prefer to import a more "official" looking graphic from a source like *wikipedia*.

The container for all the preliminary laser activity is the air-tight glass envelope. I ask my students to think of this glass envelope as their brain. In addition to the essential hardware inside the glass envelope, it is filled with a mixture of helium and neon gases. (For reasons not really important to students in an English class, the ratio of helium to neon is usually 5:1.) If the glass envelope represents the students' brain, then the helium-neon mixture represents the students' general knowledge, specialized knowledge, remembered experiences, random ideas, and inert writing style.

As can be seen in the diagram, electrodes are positioned inside the glass envelope at opposite ends. These cathode and anode connections provide the electrical charge which will provide the initial stimulation for the helium and neon atoms. Another term for the cathode and anode connections is the energy pump. Simply put, the elec-

trical charge runs from the cathode to the anode connection, and as the current passes through the gas, it excites primarily the helium atoms. The nature of this excitement takes the form of movement. Absorbing energy from the electricity, the helium atoms move to a higher energy level.

In making this move, the helium atoms collide with the neon atoms. Upon impact, the neon atoms absorb energy from the helium and jump to a higher energy level themselves. This movement to a higher energy level constitutes the first stage of stimulation. Before moving on to the second stage of stimulation, I point out to the students that the cathode-anode connection corresponds to the English major's response to the writing assignment, his or her impulse to explore/discover/ and solve. These are the mental elements that provide the initial jolt, the primary flow of energy from the cathode. Completing this flow by providing a full circuit, the laser's anode, is the student's own curiosity/motivation.

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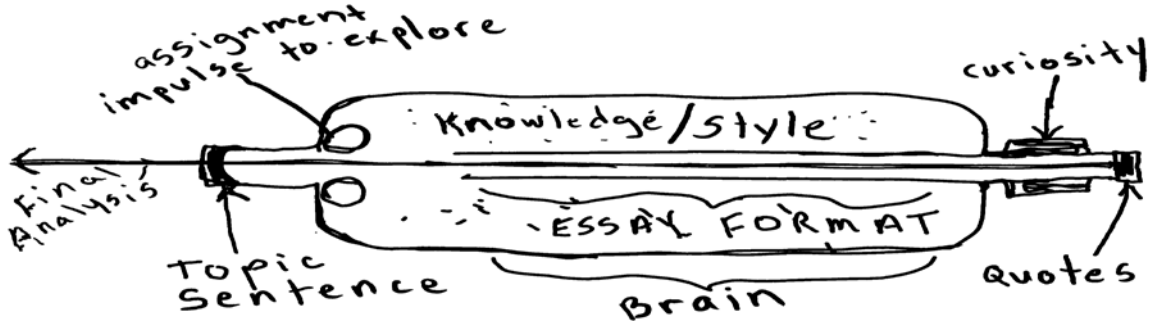
Significantly, and most students can identify with this tendency, neon atoms do not care to stay too long at their higher energy level. Their comfort zone exists down there where they were resting when they got knocked up by the helium atoms. However, in order to drop back down to a lower, more stable energy level, the neon atoms must get rid of the excess energy they've absorbed. This shift occurs when the neon pops out a photon—a small particle of light. Obviously, since the photon will shoot out traveling at the speed of light, a second stage of stimulation will begin because these high speed photons, when they collide with neon atoms, will cause them to pop out additional photons.

These "cloned" photons share the same wavelength and the same direction as the stimulating photons. (http://cat.middlebury.edu/~PHManual/heliumneon.html) A chain reaction of sorts has begun. This is the first step in the process of light amplification (Now may be a good time to remind students that LASER means Light Amplification by Stimulated Emission of Radiation.). In addition to photons creating photons, the initial collisions of helium atoms with neon atoms continue to produce other photons that will go on to collide with still more neon atoms.

I like to think that at the moment when that homesick neon atom finally pops out its photon, it must feel something very akin to enlightenment. On the quantum level, that photon popping out has to correspond to the light bulb clicking on inside a person's head. After all, a tiny light actually does click on. So in being translated from the realm of physics to the realm of literary analysis, photons represent insights, realizations, and conclusions that may or may not be used in the student's final draft.
Without a strong sense of direction, a laser can never hope to be more than a neon sign. Consequently, the core of the glass envelope is a narrow channel called the laser bore

# Elements of the Literary Analysis: What the English Major Sees




tube. By compacting all the high energy collisions into a more focused flow, the laser bore tube creates another source of amplification for the stimulated emissions—the "beam" of light. The basic necessity of the laser bore tube's function is what prompts me to sometimes get impatient with people who refuse to see how basic structure and creativity can work quite productively together. In the English major's world, the laser bore tube represents the essay format.

For me, the essay format always means the five paragraph format, not that an essay must be limited to five paragraphs, but an essay must fulfill a reader's desire to read an attention getting device in the introduction as well as his or her desire to find a strong dependable thesis statement to cling to. The five paragraph essay as a metaphor also insists that each support paragraph should begin with a topic sentence to which all other sentences in the paragraph will pay homage and from which they will seek guidance or direction.

Finally, the most important stage of light amplification occurring in the glass envelope takes place between two mirrors. One is the high reflector and the other is the output coupler. The high reflector mirror sits at the anode end of the glass envelope with the single purpose of bouncing back all the light zipping through the laser bore tube. Ideally, this mirror should be 100% reflective. In contrast, the output coupler must be slightly less reflective than the high reflector mirror. Of course, up to a point, the output coupler must bounce back through the laser bore tube as much light as the other mirror. Then, once the light has been amplified to a high enough level, the output coupler becomes, for all practical purposes, transparent, a window instead of a mirror, and the highly amplified light becomes the laser output.

For the English major, the two rhetorical devices that take the place of the high reflector and the output coupler are elements from the quotation and the topic sentence (In a previous, preliminary act of analysis, the student has produced a topic sentence.). Now, for the sake of discussion, we will assume that the student has progressed to that stage of composition at which he or she

wants to produce an analytical paragraph. The most important moment of stimulation and amplification occurs in the mental movement between a student's topic sentence and bouncing that topic sentence off the quotation he or she has chosen to analyze. One moment, the student considers his or her topic sentence; then a split second later, the student considers how each element of his quotation might accommodate the implications of the topic sentence. Back and forth the student's attention bounces, quotation illuminating topic sentence, topic sentence illuminating quotation, until finally a level of energy develops that clarifies and burns its way out into the world and onto the student's page, the final analysis, the final topic sentence, the final thesis statement. So pure and coherent is this beam of thought that it instantly vaporizes all extraneous concerns, all vague or random references. We have achieved the death ray for generalities.

Quite understandably, to pull all the corresponding elements together for students, the teacher needs to provide one further diagram: what the laser of science looks like once it is fully translated into the laser of literary analysis. Personally, I like to base this second illustration, below, on the rather crude and comic drawing style of Mark Twain as found in *A Tramp Abroad*, just to remind students that as much as we like to pretend, our level of literary technology should not expect, nor should it want to assume the deceptive precision of pure science's diagrams. Nevertheless, we must not discourage writing students from striving for the highest level of accuracy they can achieve when trying to provide concrete representations for some of their more abstract speculations. At the same time, though, we should also encourage them to anticipate all the possible distortions that might result from those representations.

*Radford University English Professor Donald Secreast attended Appalachian State University, Johns Hopkins, and the University of Iowa, where he received his Ph.D. in English. He has published two short story collections: The Rat Becomes Light (Harper & Row, 1990) and White Trash, Red Velvet (HarperCollins, 1993). He has traveled through Peru, Ecuador, and Bolivia, and is presently working on a book-length essay about using Microsoft Excel to create narrative wave charts for short stories, a research project even his friends don't take seriously, he laments.*