

## Meaningful Distinctions: The Utility of Perseus Project Latin Treebanking Tools for Latin Research-Based Pedagogy

The third semester of university-level Latin instruction often serves as the bridge between the abstractions of introductory Latin and the ability to read extensive passages of unaltered ancient text. While the texts chosen are various, the focus of such courses is typically centered on assisting students in developing the greatest possible facility with the language, while attaining some level of familiarity with the historical context and literary significance of the chosen readings. Within such a model, students might be assumed to not yet have the skill and experience needed to learn philology by contributing to philological research; however, the Latin treebanking toolset of the Perseus Project, although developed originally for conducting research in corpus linguistics using expert researchers and advanced students under their supervision, is emerging as a powerful pedagogical tool for the illustration of complex syntactic structures, the fluid exploration of potential solutions, and as a means for students in the early phases of learning an ancient language to contribute directly to philological research.

Based on the work of the Prague Dependency Treebank and the *Latin Syntax and Semantics* of Harm Pinkster, the digital treebanking tools Persues Project require students to identify and fully parse each word in a sentence, while also determining what other word each word is dependent upon: i.e. which other word is its syntactic head. For example, in the simple sentence "*orator bonus est*," a student would identify *orator* as the nominative, singular, masculine form of the word *orator*, *oratoris* and would make it dependent on the verb *est* as the subject of that verb. The word *bonus* would depend on the verb *est* as a predicate nominative. Once a student has learned to read the syntactic "tree," a previously treebanked text becomes a detailed syntactic commentary. Even the most elaborate periodic sentence of Cicero, for

example, is rendered into units manageable even to students otherwise unable to gain control of the sentence as a whole.

The WYSIWYG treebanking editor (GUI) developed jointly by the Perseus and the Alpheios Projects offers distinct pedagogical advantages over any form of manual parsing of sentences, while it eliminates the two major limitations of manually drawing a syntactic tree: inefficient use of class time and the inability to efficiently attempt multiple solutions to a syntactic problem. No time is wasted in writing out a sentence, and, crucially, proposed syntactic links that do not work may simply be dragged onto another head without the loss of time required to erase and redraw entire branches of the syntactic tree. For example, if a student were to propose that an indirect question might be dependent on the subject noun of the main clause, the solution could be attempted, and, when that solution was rejected as unworkable, the indirect question could be moved in a few seconds and as a unit to the verbal form that would be its likely head. This technique preserves all aspects of the student's analysis that are correct, while class time is focused on clarifying the likely few errors or misconceptions impeding the student's understanding of the sentence. Provisionality and experimentation are preserved without the use of exorbitant amounts of class time, while fostering open discussion of points of potential ambiguity in the texts.

The necessity of fully parsing and linking each individual word to its syntactic head compels the students to make significant numbers of meaningful (and easily evaluated) syntactic distinctions; the use of treebanking in early Latin pedagogy compels the students to approach morphology and syntax as a single linked phenomenon. The global effect observed in practice was a marked tendency for the students to go to the morphology as the first step in understanding the syntax of a word, rather than as an afterthought.

In addition to the advantages offered by the treebanking editor as a tool for illustrating structures and modeling problem-solving strategies based on morpho-syntax, the acquisition of treebanking methodology offers the opportunity for students as early as their 3<sup>rd</sup> semester of Latin (or Greek) instruction to contribute to ongoing linguistic research. In this paper, I will show how such students were able to analyze the *Res Gestae* of Augustus. While making meaningful syntactic and morphological distinctions for each word, students provided significant quantities of data with immediate pedagogical utility. These data could be rapidly scored, allowing student progress to be finely monitored and classroom instruction to be more precisely targeted. Following discussions at the recent NEH institute entitled "Working with Text in a Digital Age", these tools are to be refined with the goal of allowing their use from the first semester of Latin and Greek language instruction, within an expanded suite of pedagogical tools that leverage previously treebanked texts to automatically generate drills and quizzes.