Current second language (L2) research focuses on the level of features—that is, the core elements of languages in the Minimalist Program framework. These features, involved in computations, are further divided into two types: those that indicate to which category a word belongs (i.e., interpretable features) versus those that constrain the type of affix realized on a word (i.e., uninterpretable features). Some researchers argue that L2 learners cannot acquire those uninterpretable features that are not part of their first language (L1) grammar, instead L2 learners rely on context-sensitive rules of co-occurrences, or domain-general feature associations. In contrast, other researchers propose that features have the same nature and etiology in L1 and L2 grammars, but that the task of (re)assembly is considerable. Crucially, domain-general symmetrical matching of features and domain-specific asymmetrical checking of an uninterpretable feature by an interpretable counterpart have distinct processing consequences. The features examined in this study are number and (grammatical) gender; the latter is not licensed in English, whereas the former is. Three groups of English-speaking learners of French participated in this study: 43 second-semester, 53 fourth-semester, and 30 advanced learners. Data were also collected from 31 French native speakers to form a control group. Four experiments were designed in which the gender feature was manipulated in the verbal and the nominal domain, and the number feature in the verbal domain. The tasks consisted of a judgment task presented on a computer, one word at a time. Reading times (RTs) and acceptance rates were analyzed. The acceptance rates overall revealed two profiles: The low-proficiency learners were found to accept all forms independent of context, whereas the advanced learners behaved like the native speakers. In contrast, the RT data yielded a single processing profile: Learners at all levels of proficiency exhibited asymmetries that seem most consistent with domain-specific feature computations. Moreover, there appears to be a dissociation between processing and grammatical knowledge, with the latter lagging behind, which points to the parser as a primary tool of language learning.