In my lecture I explore argument structure of verbs in Homeric Greek, based on all occurrences of individual verbs in the two poems (11,855 tokens). I first calculate the frequency of different types of argument structure, and show how they correlate with semantic properties of verbs. My hypothesis is that least frequent argument structures correlate with more specific meanings of verbs, while more frequent ones show lower semantic constraints. Verbs which take the transitive (Nominative-Accusative) construction are expected to constitute the most numerous group among verbs that have more than one argument. Tentatively, it should be possible to divide transitive verbs into semantic sub-groups (e.g. action verbs, transitive verbs of emotion), and check if they display different behaviors as to the possibility of occurring with other constructions, including the passive. I further intend to test the possibility of finding null arguments: for this purpose, I analyze verbs that show the Nominative-Accusative-Dative construction but can also occur only with an argument in the nominative and one in the dative. My aim is to determine whether such occurrences are instantiations of the Nominative-Dative construction, or rather instantiation of the Nominative-Accusative-Dative construction featuring a null object. My study is based on the Perseus Treebank. Various tests performed in order to carry out the research outlined above also aim at highlighting advantages and problems with this type of annotation.