7.1.s. Summary

Not all singular noun phrases are individual terms. Many are quantifier phrases formed using quantifier words. These phrases are used to say how many objects of a certain kind have a certain property. The study of them dates to Aristotle's theory of syllogisms and was active again in medieval theories of "supposition" but some central problems were solved only with Frege's work a century ago. The problems he solved concern the role of multiple quantifier phrases in the same sentence. To describe this role, we must describe the contribution of individual phrases in a way that takes account of the interaction between phrases, something that can lead to multiple ambiguity. Frege's approach was to regard quantifier phrases as signs for operations that apply to predicates, with the interaction of phrases accounted for by the order in which these operations are applied. A particular order of application can usually be fixed in English (and different interpretations of a sentence are distinguished) by subject-predicate expansions using the phrase *is such that*.

Complex predicates can be avoided when they apply to individual terms and all such sentences can be stated in reduced form, but this is not always possible in the case of quantifier phrases because a quantifier phrase may be used to state a relation between predicates that cannot be analyzed as a compound of separate claims about these predicates. For the same reason, pronouns with quantifier phrase antecedents often cannot be replaced by their antecedents, and we may even have to introduce pronouns with quantifier phrase antecedents when we paraphrase compound phrases by compound clauses.

The core of a quantifier phrase consists of a quantifier word and a common noun, but the noun may be modified by adjectives, relative clauses, or prepositional phrases. You can test to see if you have isolated the whole of a quantifier phrase by seeing if it would be grammatical to replace it by the pronoun *it*. Prepositional phrases in the predicate can often be understood to modify either a noun or a verb (and can be missed by the pronoun test); they are part of the quantifier phrase if they can be restated as relative clauses.

A generalization claims that every object in a certain class, the generalization's domain, has a certain property, the generalization's attribute. In the simplest cases the domain is the class (the indicated class) that is picked out by the class indicator, the common noun plus modifiers of the quantifier phrase; and the attribute is expressed by the quantified predicate to which the quantifier phrase is applied. The

content of a generalization can often be clarified by considering the sort of counterexample that would show it to be false. When the attribute of the generalization is expressed by the quantified predicate, the generalization is affirmative . The words *all* and *every* are used to express affirmative generalizations while *no* is used to express a negative generalization, one whose attribute is the denial of the quantified predicate. All these words express direct generalizations, whose domain is the indicated class; but, in other generalizations, complementary generalizations, the domain is outside the indicated class. In the simplest case, it is the full complement of this class, which is its complement relative to the class of all reference values—i.e., the result of subtracting it from this class.

Other, less straightforward, relations between the wording of the generalization and the claim it makes can be indicated by modifiers of the quantifier phrase that we will label bounds indicators or exception indicators . The complement of an indicated class over which a generalization is made is often not its full complement but its complement relative to some bounding class , which may cited explicitly by a bounds indicator (such as *among* B*s*) or may be implicit in the context. There seems to be no word designed to express generalizations that are both affirmative and complementary. Nevertheless, direct generalizations may be restricted to objects outside a class of exceptions by use of such phrases as *except* E*s*. Bounds and exceptions limit the domain by intersecting it with another class (the bounding class or the complement of the class of exceptions); the order in which these operations are carried out makes no difference.