Quantification of one form or another has figured prominently in much of recent linguistic research in syntax and semantics. Theories of grammar, be they of the 'transformational-generative' (Generative Semantics, Extended Standard Theory) or the 'formal-semantic' (Montague, Keenan–Faltz) variety, have all concerned themselves with the properties of sentences such as

(1) (a) Every student has read some book
     (b) Some book has been read by every student.

Most often, accounts of such sentences have made reference to two distinct interpretations, corresponding to the two possible scope dependency relations between the two NP's – in example (1), every student and some book.

Transformational-generative theories – e.g. McCawley (1971), Carden (1976), Chomsky (1976) – have generally assumed for their logical forms a first order language that is "close to that of standard forms of predicate calculus" – Chomsky and Lasnik (1977, p. 429). Within such systems, the two interpretations of (1) may be represented by the two possible linear orderings of the universal and existential quantifiers in formulae such as

(2) (a) \( \forall s \exists b R(s, b) \)
     (b) \( \exists b \forall s R(s, b) \).

Systems similar to the first order predicate calculus have also been posited by philosophers concerned with the representation of meanings in natural language – e.g. Quine (1960).

Logical forms of quite a different appearance, however, are posited in formal-semantic theories – e.g. Montague (1970, 1973), Keenan and Faltz (1978, 1980). There, determined NP's (e.g. every student) are assigned the same category as NP's without determiners (e.g. John) – resulting in logical forms which are seemingly quantifier-free. As is pointed out by

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Barwise and Cooper (1981), though, logical quantifiers correspond to full NP expressions (e.g. every student, John) and not to determiner expressions (e.g. every); moreover, it is the interpretations associated with full NP's, not with determiners, that enter into scope relations. In fact, Lewis (1972, p. 198) and Partee (1975; pp. 226–228) show that the constituent structures of Montague and Keenan–Faltz logical forms force the same quantifier scope dependencies that are determined by the linearly ordered quantifier prefixes of the first order predicate calculus. That is to say, for any two NP's A and B, either the reference of B is dependent on the reference of A, or vice versa. (Of course, in some cases, e.g. if A and B are definite, both NP's may independently refer, and the scope dependency will be vacuous.) Thus, Montague and Keenan–Faltz assign to (1) two logical forms that are equivalent (with respect to quantification) to (2a, b), set-theoretic intersections and unions substituting for the universal and existential quantifiers respectively.

It has been observed, however, that if the universal and existential quantifiers of (1) are replaced by more general quantifiers, a third interpretation results, one in which neither quantifier has wider scope than the other. Jackendoff (1971; p. 307) was the first to point out that sentence (3) has the additional interpretation in which there is a single set of three stories, and a single set of many men:

(3) I told three of the stories to many of the men.

Similar examples are provided by Carlson (1977), Langendoen (1978), and others.

In a recent article, Kempson and Cormack (1981) distinguish between 'scope-differentiated' interpretations, where one of two NP's in a sentence is in the scope of the other, and 'group' interpretations, where each of the two NP's independently refers. In example (3) above, the group interpretations are those in which there is a unique set of three stories and a unique set of many men, while the scope-differentiated interpretations are those in which the uniqueness of both sets is not guaranteed, i.e. there may be more than one set of three stories, or more than one set of many men. Among the group interpretations, Kempson and Cormack make the further distinction between a 'complete group' interpretation, in which every member of the first set bears the appropriate relation to every member of the second set, and an 'incomplete group' interpretation, in which a weaker condition holds, namely, that every member of the first set bears the appropriate relation to at least one member of the second set, and, conversely, every member of the second set bears the appropriate relation to at least one member of the