TFL is most succinctly given in so-called "host-donor form":

$$E(+M),\ E^*(-M)\ /\ E(E^*)$$

where M is the *middle term*, $E(+M)$ is the *host sentence*, and $E^*(-M)$ is the *donor sentence*. E^* is the donor sentence with $-M$ deleted, i.e., the environment or context of $-M$ in the donor sentence. $E(E^*)$ is the host sentence with E^* substituted for M in the host sentence.

Application of the DDO can be very impressive, as illustrated by the following example (page 144). The host sentence is "Every woman kisses some child" (in TFL, $-W_6+K_{67}+C_7$). The donor sentence is "Some sailor is giving every child a toy" (in TFL, $+S_1+G_{123}-C_2+T_3$). With C as the middle term, $E(\cdots) = -W_6 + K_{67} + \cdots$ and $E^* = +S_1 + G_{123} + T_3$. Replacing '2' by '7' (permitted because C is universally distributed in the donor sentence) gives $E(E^*) = -W_6+K_{67}+(S_1+G_{173}+T_3)$, which is the algebraic representation of "Every woman kisses someone a sailor is giving a toy to."

Why DDO works can be seen as follows. Since M is universally distributed in the donor sentence, the rules of passage for quantifiers permit moving $-M$ left to the head of the donor sentence. Then the principle of monotonicity (also known as the "substitutivity of implication rule") permits substitution of the donor context (which is the consequent of the implication) for M in the host sentence.

But like the principle of monotonicity, to enjoy full generality, DDO must be defined recursively. The problem is shown by the following example. The host sentence is "Some man is father of some girl" (algebraically, $+M_1 + \langle F_{12} + G_2\rangle$), or in dyadic normal form, $+M_1 + \langle G_2 + F_{12}\rangle$. The donor sentence is "If a man[1] is father of a girl[2] then he$_1$ is parent of her$_2$" (algebraically, $-[M_1' + \langle F_{12} + G_2''\rangle] + [M_3' + \langle P_{34} + G_4''\rangle]$), which is equivalent (in TFL) to $-M_1 + \langle -G_2 + \langle -F_{12} + P_{12}\rangle\rangle$. With F as the middle term,

$$E(E^*) = +M_1 + \langle G_2 + \langle -M_1 + \langle -G_2 + P_{12}\rangle\rangle\rangle$$

which entails the obviously false $-M_1 + \langle -G_2 + P_{12}\rangle$, i.e., "Every man is parent to every girl." But the problem is avoided if DDO is defined recursively.

On balance, this book is stimulating and thought-provoking. It would be an interesting experience to use it to teach an introductory course in formal logic. In addition to the copious examples, the book contains after each section a set of exercises to test comprehension. The exercises are given in natural language form that will cultivate critical thinking skills. As a text, it is unfortunate that it has no index. It does, however, have a detailed table of contents and a reasonably complete table of rules, laws, and principles. The book contains a number of typographical errors, including disruption of some of the semantic trees. But these shortcomings as well as the lapses in PEQ and DDO could be removed easily in a subsequent edition.

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Alasdair Urquhart. *The complexity of linear logic with weakening*. ***Logic Colloquium '98, Proceedings of the annual European summer meeting of the Association for Symbolic Logic, held in Prague, Czech Republic, August 9–15, 1998***, edited by Samuel R. Buss, Petr Hájek, and Pavel Pudlák, Lecture notes in logic, no. 13, Association for Symbolic Logic, Urbana, and A K Peters, Natick, Mass., 2000, pp. 500–515.

There have been many surprises connected with propositional linear logic. First Lincoln, Mitchell, Scedrov, and Shankar (*Decision problems for propositional linear logic*, ***Annals of pure and applied logic***, vol. 56 (1992), pp. 239–311) showed how to simulate computations in linear propositional logic and thereby proved that it was undecidable. Later Kopylov (*Decidability of linear affine logic*, ***Proceedings, Tenth annual IEEE symposium on Logic in***