3.17.1. Alternative Connective Problems

A. We noted that the connective "%" would use the following Elim rule.

Wo Elim (%–)

(On Left)	(On Right)
(● # ▲)	(● % ▲)
●	~▲

For each form of Wo Elim (on the left, and on the right), state the **dual rule** – using the definition of "dual of an argument" set out in 3.34 §1.

> The (connective) **dual of an argument** is the result of (i) switching the conclusion and the premise(s) of that argument, then (ii) replacing each sentence with its (connective) dual. (If the argument has more than one premise, these premises are conjoined together before Step (i).)

B. In 3.10 §2 it was noted that the **vel distributes over** the **wedge**, and vice versa. That is: the following arguments are **both valid**.

1. (P ∨ (Q ∧ R))	1. (P ∧ (Q ∨ R))
∴ ((P ∨ Q) ∧ (P ∨ R))	∴ ((P ∧ Q) ∨ (P ∧ R))

1. Does the **vel distribute over** the **wo**? Does the **wedge distribute over** the **wo**? That is: is the following argument valid?

1. (P ∨ (Q **%** R))	1. (P ∧ (Q **%** R))
∴ ((P ∨ Q) **%** (P ∨ R))	∴ ((P ∧ Q) **%** (P ∧ R))

2. Does the **vel distribute over** the **exor**? Does the **wedge distribute over** the **exor**? (That is: which of the following arguments, if any, is valid?)

1. $(\underline{P \vee} (Q \oplus R))$

$\therefore ((\underline{P \vee} Q) \oplus (\underline{P \vee} R))$

1. $(\underline{P \wedge} (Q \oplus R))$

$\therefore ((\underline{P \wedge} Q) \oplus (\underline{P \wedge} R))$