`simple1` and
`simple2`:

$$\dfrac{\dfrac{P \wedge Q}{P} \qquad \dfrac{\dfrac{P \wedge Q}{Q} \qquad Q \to R}{R}}{P \wedge R}$$

$$\begin{array}{rcl} \langle\!\langle P \rangle\!\rangle & := & \pi \langle\!\langle P \wedge Q \rangle\!\rangle \\ \langle\!\langle Q \rangle\!\rangle & := & \pi' \langle\!\langle P \wedge Q \rangle\!\rangle \\ \langle\!\langle R \rangle\!\rangle & := & \langle\!\langle Q \to R \rangle\!\rangle \langle\!\langle Q \rangle\!\rangle \\ \langle\!\langle P \wedge R \rangle\!\rangle & := & (\langle\!\langle P \rangle\!\rangle, \langle\!\langle R \rangle\!\rangle) \end{array}$$

$$\dfrac{\dfrac{\dfrac{[P \wedge Q]^1}{P} \qquad \dfrac{\dfrac{[P \wedge Q]^1}{Q} \qquad Q \to R}{R}}{P \wedge R}}{P \wedge Q \to P \wedge R}\ 1$$

$$\begin{array}{rcl} \langle\!\langle P \rangle\!\rangle & := & \pi \langle\!\langle P \wedge Q \rangle\!\rangle \\ \langle\!\langle Q \rangle\!\rangle & := & \pi' \langle\!\langle P \wedge Q \rangle\!\rangle \\ \langle\!\langle R \rangle\!\rangle & := & \langle\!\langle Q \to R \rangle\!\rangle \langle\!\langle Q \rangle\!\rangle \\ \langle\!\langle P \wedge R \rangle\!\rangle & := & (\langle\!\langle P \rangle\!\rangle, \langle\!\langle R \rangle\!\rangle) \\ \langle\!\langle P \wedge Q \to P \wedge R \rangle\!\rangle & := & \lambda \langle\!\langle P \wedge Q \rangle\!\rangle . \langle\!\langle P \wedge R \rangle\!\rangle \end{array}$$

`distributivity1`:

$$\dfrac{(P \wedge R) \vee (Q \wedge R) \qquad \dfrac{\dfrac{\dfrac{[P \wedge R]^1}{P}}{P \vee Q} \qquad \dfrac{[P \wedge R]^1}{R}}{(P \vee Q) \wedge R} \qquad \dfrac{\dfrac{\dfrac{[Q \wedge R]^1}{Q}}{P \vee Q} \qquad \dfrac{[Q \wedge R]^1}{R}}{(P \vee Q) \wedge R}}{(P \vee Q) \wedge R}$$

$$\dfrac{\dfrac{(P \wedge R) \vee (Q \wedge R) \quad \dfrac{\dfrac{[P \wedge R]^1}{P}}{P \vee Q} \quad \dfrac{\dfrac{[Q \wedge R]^1}{Q}}{P \vee Q}}{(P \vee Q)} \quad \dfrac{(P \wedge R) \vee (Q \wedge R) \quad \dfrac{[P \wedge R]^1}{R} \quad \dfrac{[Q \wedge R]^1}{R}}{R}}{(P \vee Q) \wedge R}$$

This one, which seems to require '$\rightarrow$', fails in some way:

$$\dfrac{\dfrac{(P \vee Q) \wedge R}{P \vee Q} \quad \dfrac{\dfrac{\dfrac{(P \vee Q) \wedge R}{R}}{P \wedge R}}{(P \wedge R) \vee (Q \wedge R)} \quad \dfrac{\dfrac{\dfrac{(P \vee Q) \wedge R}{R}}{Q \wedge R}}{(P \wedge R) \vee (Q \wedge R)}}{(P \wedge R) \vee (Q \wedge R)}\ 1$$