Commutative Full Lambek Calculus with Contraction $\mathrm{FL}_{\mathbf{ec}}$

$$\frac{}{p \Rightarrow p} \qquad \frac{X, A, A \Rightarrow \Pi}{X, A \Rightarrow \Pi}\ (c)$$

$$\frac{}{\bot, X \Rightarrow \Pi} \qquad \frac{}{X \Rightarrow \top}$$

$$\frac{}{0 \Rightarrow} \qquad \frac{X \Rightarrow}{X \Rightarrow 0}$$

$$\frac{X \Rightarrow \Pi}{1, X \Rightarrow \Pi} \qquad \frac{}{\Rightarrow 1}$$

$$\frac{X, A, B \Rightarrow \Pi}{X, A \otimes B \Rightarrow \Pi}\ (\otimes L) \qquad \frac{X \Rightarrow A \qquad Y \Rightarrow B}{X, Y \Rightarrow A \otimes B}\ (\otimes R)$$

$$\frac{X, A \Rightarrow \Pi \qquad X, B \Rightarrow \Pi}{X, A \vee B \Rightarrow \Pi}\ (\vee L) \qquad \frac{X \Rightarrow A}{X \Rightarrow A \vee B}\ (\vee R)$$

$$\frac{X, A \Rightarrow \Pi}{X, A \wedge B \Rightarrow \Pi}\ (\wedge L) \qquad \frac{X \Rightarrow A \qquad X \Rightarrow B}{X \Rightarrow A \wedge B}\ (\wedge R)$$

$$\frac{X \Rightarrow A \qquad Y, B \Rightarrow \Pi}{X, Y, A \to B \Rightarrow \Pi}\ (\to L) \qquad \frac{X, A \Rightarrow B}{X \Rightarrow A \to B}\ (\to R)$$

A rule instance is obtained by instantiating the variables: X and Y by multisets of formulas; p by a propositional variable; A and B by formulas; Π by a multiset that is empty or contains a single formula.