

### 3.9.1. NCF Sentence Problems

A. Build a matching Nested Conditional Form (NCF) sentence for each of the following truth tables.

B. ‘Eet Wraps’ and a Further Conditional Form.<sup>1</sup> Recall that the language  $\{\rightarrow, \perp\}$  is expressively adequate because it contains the semantic equivalent of negation. For instance, the following sentence is the semantic equivalent of “ $\sim P$ ”.

P	$\perp$	$\sim P$	$(P \rightarrow \perp)$
1	0	0	0
0	0	1	1

Call the “**eet wrap**” of sentence  $\blacktriangle$  the conditional with  $\blacktriangle$  as the antecedent and  $\perp$  as the consequent.

The **eet wrap** of Sentence  $\blacktriangle$ : the conditional  $(\blacktriangle \rightarrow \perp)$ .

Since Nested Conditional Form (NCF) matches any possible truth table with some sentence in the language  $\{\rightarrow, \sim\}$ , and arrow and eet together can semantically replace the tilde, we can systematically replace tildes in a NCF sentence, yielding a sentence where **the only molecular sentences are conditionals**.

Say that any such revised NCF sentence is in **Pure NCF**.

1. State revised instructions for building a Pure NCF sentence true in just one (given) valuation.
2. State revised instructions for matching a Pure NCF sentence to any (given) truth table.
3. Give a Pure NCF sentence to match each of the following truth tables.

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<sup>1</sup> This problem adapts material from (Church 1956: 102) Problem 15.4.