

**function** TT-ENTAILS?( $KB, \alpha$ ) **returns** *true* or *false*

$symbols \leftarrow$  a list of the proposition symbols in  $KB$  and  $\alpha$

**return** TT-CHECK-ALL( $KB, \alpha, symbols, []$ )

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**function** TT-CHECK-ALL( $KB, \alpha, symbols, model$ ) **returns** *true* or *false*

**if** EMPTY?( $symbols$ ) **then**

**if** PL-TRUE?( $KB, model$ ) **then return** PL-TRUE?( $\alpha, model$ )

**else return** *true*

**else do**

$P \leftarrow$  FIRST( $symbols$ );  $rest \leftarrow$  REST( $symbols$ )

**return** TT-CHECK-ALL( $KB, \alpha, rest, EXTEND(P, true, model)$ ) **and**

        TT-CHECK-ALL( $KB, \alpha, rest, EXTEND(P, false, model)$ )

**function** PL-RESOLUTION( $KB, \alpha$ ) **returns** *true* or *false*

$clauses \leftarrow$  the set of clauses in the CNF representation of  $KB \wedge \neg\alpha$

$new \leftarrow \{\}$

**loop do**

**for each**  $C_i, C_j$  **in**  $clauses$  **do**

$resolvents \leftarrow$  PL-RESOLVE( $C_i, C_j$ )

**if**  $resolvents$  contains the empty clause **then return true**

$new \leftarrow new \cup resolvents$

**if**  $new \subseteq clauses$  **then return false**

$clauses \leftarrow clauses \cup new$

**function** PL-FC-ENTAILS?(*KB, q*) **returns** *true* or *false*

**local variables:** *count*, a table, indexed by clause, initially the number of premises

*inferred*, a table, indexed by symbol, each entry initially *false*

*agenda*, a list of symbols, initially the symbols known to be

true

**while** *agenda* is not empty **do**

$p \leftarrow \text{POP}(\textit{agenda})$

**unless** *inferred*[*p*] **do**

$\textit{inferred}[p] \leftarrow \textit{true}$

**for each** Horn clause *c* in whose premise *p* appears **do**

decrement *count*[*c*]

**if** *count*[*c*] = 0 **then do**

**if** HEAD[*c*] = *q* **then return** *true*

PUSH(HEAD[*c*], *agenda*)

**return** *false*