



















```
: find ?recipe
: where [?recipe :ingredient ?i]
        [?i :unit :cups]
        [?i :quantity ?q]
        [?i :type :flour]
        [(<= ?q 2)]
```











?recipe

: cake

?recipe
:cake

```
:find ?recipe  
:where [?recipe :ingredient ?i]  
       [?i :unit :cups]  
       [?i :quantity ?q]  
       [?i :type :flour]  
       [(<= ?q 2)]
```



```
(defn pattern-left-join
  [graph partial-result pattern]
  (let [cols (:cols (meta partial-result))
        total-cols (calc-new-columns cols pattern)
        pattern->left (matching-vars pattern cols)]

    ;; iterate over partial-result, lookup pattern
    (with-meta
      (for [left-row partial-result
            ;; convert bindings in left-row into the
            ;; pattern to lookup in the graph
            :let [lookup (modify-pattern left-row
                                         pattern->left
                                         pattern)]
              right-row (gr/resolve-pattern graph lookup)]
        (concat left-row right-row))
      {:cols total-cols})))
```