

# CLIPS programming: cheat sheet – v0.2

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## 1 ORDERED FACTS

```
(assert (salmorejo tomato bread salt vinegar olive-oil))
(assert (I-have tomato) (I-have olive-oil))
```

## 2 NON-ORDERED FACTS

```
(deftemplate recipe
  (slot name (type SYMBOL) (default ?NONE))
  (multislot ingredients (type SYMBOL) (default ?DERIVE)))

(assert (recipe (name salmorejo) (ingredients tomato bread
salt vinegar olive-oil)) )
(assert (recipe (name tortilla) (ingredients eggs potato
onion)) )
(modify 1 (name NEW-NAME) )
(duplicate 2 (ingredients NEW-INGREDIENTS) )
(undeftemplate recipe)
```

## 3 INITIAL FACTS

```
(deffacts my-recipes
  (recipe (name salmorejo) (ingredients tomato bread
salt vinegar olive-oil))
  (recipe (name flamenquin) (ingredients ham pork-loin
cheese breadcrumbs))
)
(deffacts my-pantry
  (I-have ham)
  (I-have tomato) )

(list-deffacts)
```

## 4 FACTS: MISC

```
(facts) (facts 2 5)
(retract 1) (retract *)
(reset)
```

## 5 RULES

```
(defrule find-recipe "Very useful"
  (declare (salience 10))
  (recipe (name ?name) (ingredients $? tomato $?))
  =>
  (printout t "Recipe found: " ?name crlf) )

(defrule r-union-set
  (or (set1 $? ?v $?)
      (set2 $? ?v $?) )
  (not (union $? ?v $?))
  ?un <- (union $?values)
  =>
  (retract ?un)
  (assert (union $?values ?v)) )

(defrule are-there-minus-one
  (exists (data $? -1 $?) )
  =>
  (printout t "There is at least one fact with -1" crlf)
)

(defrule fire-controlled "All fires controlled?"
  (emergency (type fire))
  (forall (emergency (type fire)
                  (location ?where))
    (firemen (location ?where))
  )
  =>
  (printout t "All under control." crlf))

(defrule you-can-cross
  (logical (traffic-light green))
  =>
  (assert (you-can cross)))

(undefrule *)
```

## 6 RULES: MISC

```
(agenda)
(run) (run 3)
(set-strategy random)
```

## 7 GLOBAL VARIABLES

```
(defglobal
  ?*gcum* = 0
  ?*ntimes* = 3)

(bind ?*ntimes* 5)
?*ntimes*
```

## 8 MODULES

```
(defmodule MAIN (export ?ALL))
(defmodule A
  (export ?ALL)
  (import MAIN deftemplate initial-fact recipe) )
(defmodule B (import A ?ALL)
  (import MAIN deftemplate initial-fact) )

(focus A B)
(return)
```

## 9 CUSTOM FUNCTIONS

```
(deffunction print-args
  "Show input arguments"
  (?a ?b $c)
  (printout t ?a " ", " ?b " and " (length ?c) " Extra: " $c crlf))
```

## 10 Misc

```
(clear)
(exit)
/watch facts) (unwatch facts)
```