File created: 5-Dec-2020 16:26:58 **{DSK}<Users>arunwelch>SKYDRIVE>DOCUMENTS>UNIX>LISP>LDE>ROOM S>MEDLEY-35>ROOMS-GEOMETRY.;2**

previous date: 17-Aug-90 12:45:39   {DSK}<Users>arunwelch>SKYDRIVE>DOCUMENTS>UNIX>LISP>LDE>ROOMS>MEDLEY-35>ROOMS-G EOMETRY.;1

Read Table: XCL

Package: ROOMS

Format: XCCS

```
(IL:RPAQQ IL:ROOMS-GEOMETRYCOMS
        ((FILE-ENVIRONMENTS IL:ROOMS-GEOMETRY)
         (IL:P (EXPORT '(EXTERNALIZE-REGION INTERNALIZE-REGION EXTERNALIZE-POSITION INTERNALIZE-POSITION))
               (REQUIRE "ROOMS"))
         (IL:COMS

                ;; externalizing for suites & background text

                (IL:FUNCTIONS EXTERNALIZE-REGION INTERNALIZE-REGION EXTERNALIZE-POSITION INTERNALIZE-POSITION
                        EXTERNALIZE-COORDINATE INTERNALIZE-COORDINATE)
                (IL:GLOBALVARS IL:SCREENWIDTH IL:SCREENHEIGHT))
         (IL:COMS

                ;; scaling used by placement editor & backgrounds

                (IL:STRUCTURES SCALE)
                (IL:VARIABLES *ONE-TO-ONE*)
                (IL:FUNCTIONS MAKE-SCALE EQUAL-SCALES)
                (IL:FUNCTIONS SCALE-WIDTH SCALE-HEIGHT SCALE-X SCALE-Y SCALE-REGION SCALE-POSITION)
                (IL:FUNCTIONS UN-SCALE-REGION UN-SCALE-POSITION UN-SCALE-HEIGHT UN-SCALE-WIDTH UN-SCALE-X
                        UN-SCALE-Y))))


(DEFINE-FILE-ENVIRONMENT IL:ROOMS-GEOMETRY :COMPILER :COMPILE-FILE
   :PACKAGE "ROOMS"
   :READTABLE "XCL")

(EXPORT '(EXTERNALIZE-REGION INTERNALIZE-REGION EXTERNALIZE-POSITION INTERNALIZE-POSITION))

(REQUIRE "ROOMS")
```

;; externalizing for suites & background text

```
(DEFUN EXTERNALIZE-REGION (REGION)
   (MAKE-REGION :LEFT (EXTERNALIZE-COORDINATE (REGION-LEFT REGION)
                              IL:SCREENWIDTH)
        :BOTTOM
        (EXTERNALIZE-COORDINATE (REGION-BOTTOM REGION)
               IL:SCREENHEIGHT)
        :WIDTH
        (EXTERNALIZE-COORDINATE (REGION-WIDTH REGION)
               IL:SCREENWIDTH)
        :HEIGHT
        (EXTERNALIZE-COORDINATE (REGION-HEIGHT REGION)
               IL:SCREENHEIGHT)))


(DEFUN INTERNALIZE-REGION (REGION)
   (MAKE-REGION :LEFT (INTERNALIZE-COORDINATE (REGION-LEFT REGION)
                              IL:SCREENWIDTH)
        :BOTTOM
        (INTERNALIZE-COORDINATE (REGION-BOTTOM REGION)
               IL:SCREENHEIGHT)
        :WIDTH
        (INTERNALIZE-COORDINATE (REGION-WIDTH REGION)
               IL:SCREENWIDTH)
        :HEIGHT
        (INTERNALIZE-COORDINATE (REGION-HEIGHT REGION)
               IL:SCREENHEIGHT)))


(DEFUN EXTERNALIZE-POSITION (POS)
   (MAKE-POSITION (EXTERNALIZE-COORDINATE (POSITION-X POS)
                        IL:SCREENWIDTH)
        (EXTERNALIZE-COORDINATE (POSITION-Y POS)
               IL:SCREENHEIGHT)))


(DEFUN INTERNALIZE-POSITION (POS)
   (MAKE-POSITION (INTERNALIZE-COORDINATE (POSITION-X POS)
                        IL:SCREENWIDTH)
        (INTERNALIZE-COORDINATE (POSITION-Y POS)
               IL:SCREENHEIGHT)))
```

```
(DEFUN EXTERNALIZE-COORDINATE (N RANGE)
   (LET ((EXTERNAL (/ N RANGE)))
        (TYPECASE EXTERNAL
            (INTEGER (FLOAT EXTERNAL))
            (OTHERWISE EXTERNAL))))


(DEFUN INTERNALIZE-COORDINATE (N RANGE)
   (ETYPECASE N
       (INTEGER N)
       ((OR FLOAT RATIONAL) (ROUND (* N RANGE)))))

(IL:DECLARE\: IL:DOEVAL@COMPILE IL:DONTCOPY

(IL:GLOBALVARS IL:SCREENWIDTH IL:SCREENHEIGHT)
)
```

;; scaling used by placement editor & backgrounds


```
(DEFSTRUCT (SCALE (:CONSTRUCTOR MAKE-SCALE-INTERNAL))
```

;;; used to scale coordinates. X-FACTOR & Y-FACTOR are the scale factor, and X-OFFSET & Y-OFFSET are added after scaling.

```
   (X-OFFSET 0 :TYPE INTEGER)
   (X-FACTOR 1 :TYPE (OR INTEGER FLOAT RATIONAL))
   (Y-OFFSET 0 :TYPE INTEGER)
   (Y-FACTOR 1 :TYPE (OR INTEGER FLOAT RATIONAL)))


(DEFGLOBALVAR *ONE-TO-ONE* (MAKE-SCALE-INTERNAL))


(DEFUN MAKE-SCALE (REGION)
```

;;; return a scale which scales the screen into REGION

```
   (MAKE-SCALE-INTERNAL :X-FACTOR (FLOAT (/ (REGION-WIDTH REGION)
                                            IL:SCREENWIDTH))
        :X-OFFSET
        (REGION-LEFT REGION)
        :Y-FACTOR
        (FLOAT (/ (REGION-HEIGHT REGION)
                  IL:SCREENHEIGHT))
        :Y-OFFSET
        (REGION-BOTTOM REGION)))


(DEFUN EQUAL-SCALES (SCALE-1 SCALE-2)
   (AND (= (SCALE-X-FACTOR SCALE-1)
           (SCALE-X-FACTOR SCALE-2))
        (= (SCALE-Y-FACTOR SCALE-1)
           (SCALE-Y-FACTOR SCALE-2))))


(DEFMACRO SCALE-WIDTH (WIDTH SCALE)
   `(ROUND (* ,WIDTH (SCALE-X-FACTOR ,SCALE))))


(DEFMACRO SCALE-HEIGHT (HEIGHT SCALE)
   `(ROUND (* ,HEIGHT (SCALE-Y-FACTOR ,SCALE))))


(DEFINLINE SCALE-X (X SCALE)
   (+ (SCALE-WIDTH X SCALE)
      (SCALE-X-OFFSET SCALE)))


(DEFINLINE SCALE-Y (Y SCALE)
   (+ (SCALE-HEIGHT Y SCALE)
      (SCALE-Y-OFFSET SCALE)))


(DEFUN SCALE-REGION (REGION SCALE)
   (IF (EQ SCALE *ONE-TO-ONE*)
       REGION
       (MAKE-REGION :LEFT (SCALE-X (REGION-LEFT REGION)
                                   SCALE)
            :BOTTOM
            (SCALE-Y (REGION-BOTTOM REGION)
                     SCALE)
            :WIDTH
            (SCALE-WIDTH (REGION-WIDTH REGION)
                     SCALE)
            :HEIGHT
            (SCALE-HEIGHT (REGION-HEIGHT REGION)
```

```
                              SCALE)))) 


(DEFUN SCALE-POSITION (POS SCALE)
   (IF (EQ SCALE *ONE-TO-ONE*)
       POS
       (MAKE-POSITION (SCALE-X (POSITION-X POS)
                              SCALE)
              (SCALE-Y (POSITION-Y POS)
                      SCALE)))))


(DEFUN UN-SCALE-REGION (REGION SCALE)
   (MAKE-REGION :LEFT (UN-SCALE-X (REGION-LEFT REGION)
                              SCALE)
          :BOTTOM
          (UN-SCALE-Y (REGION-BOTTOM REGION)
               SCALE)
          :WIDTH
          (UN-SCALE-WIDTH (REGION-WIDTH REGION)
               SCALE)
          :HEIGHT
          (UN-SCALE-HEIGHT (REGION-HEIGHT REGION)
               SCALE)))


(DEFUN UN-SCALE-POSITION (POS SCALE)
   (MAKE-POSITION (UN-SCALE-X (POSITION-X POS)
                     SCALE)
          (UN-SCALE-Y (POSITION-Y POS)
               SCALE)))


(DEFMACRO UN-SCALE-HEIGHT (HEIGHT SCALE)
   `(ROUND ,HEIGHT (SCALE-Y-FACTOR ,SCALE)))


(DEFMACRO UN-SCALE-WIDTH (WIDTH SCALE)
   `(ROUND ,WIDTH (SCALE-X-FACTOR ,SCALE)))


(DEFUN UN-SCALE-X (X SCALE)
   (UN-SCALE-WIDTH (- X (SCALE-X-OFFSET SCALE))
        SCALE))


(DEFUN UN-SCALE-Y (Y SCALE)
   (UN-SCALE-HEIGHT (- Y (SCALE-Y-OFFSET SCALE))
        SCALE))

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