Floor (integer part) taking an expression evaluating to a c.f. and yielding an integer.  $expr \leftarrow ip \{expr: expr\}$  $\mathbf{else} \, o \, \mathbf{fail}$ Fraction part taking an expression evaluating to a c.f. and yielding a c.f.  $expr \leftarrow fp \left\{ expr': expr \right\}$  $egin{aligned} \left\{ egin{aligned} expr' \ \end{aligned} 
ight\} &
ightarrow egin{aligned} \mathbf{match} & expr' \ \\ n' + rac{1}{d'} &
ightarrow & 0 + rac{1}{d'} \end{aligned}$ Reciprocal for continued fraction values  $expr \leftarrow recip \left\{ expr'' : expr \right\}$ expr''  $\rightarrow$  match c $0+rac{1}{d''} 
ightarrow d''$ else  $\rightarrow 0 + \frac{1}{c}$ Add an integer (on the left) to a continued fraction  $expr \leftarrow plus \{int: expr, cf: expr\}$  $\mathbf{else} \, o \, \mathbf{fail}$ Negate for continued fraction values  $expr \leftarrow negate \left\{ expr''': expr \right\}$ - sym expr''' juxt  $\rightarrow$  match expr''' $n''' + \frac{1}{d''''} \rightarrow \mathbf{match} \ d''''$  $2 + \circ \rightarrow \left(-n''' - 1\right) + \frac{1}{2 + \circ}$  $ext{else} 
ightarrow ext{match} \ d''''$  $1+\frac{1}{e} \rightarrow \mathbf{match} \ e$  $l+rac{1}{f} 
ightarrow \left(-n'''-1
ight)+rac{1}{\left(l+1
ight)+rac{1}{}}$  $\mathbf{else} \, \to \, \mathbf{fail}$ else  $\rightarrow$  match d''''

 $m+rac{1}{e'} 
ightarrow \left(-n'''-1
ight)+rac{1}{1+rac{1}{\left(m-1
ight)+rac{1}{}}}$ 

else  $\rightarrow -n''' + \circ$ 

 $\mathbf{else} \, o \, \mathbf{fail}$