Funcons-beta: Breaking

The PLanCompS Project

`Funcons-beta/Computations/Abnormal/Breaking/Breaking.cbs`*

Breaking

[*Datatype* breaking
  Funcon broken
  Funcon finalise-breaking
  Funcon break
  Funcon handle-break]

Meta-variables T <: values

Datatype breaking ::= broken

broken is a reason for abrupt termination.

Funcon finalise-breaking(X :⇒ T) :⇒ T | null-type
  ⇝ finalise-abrupting(X)

finalise-breaking(X) handles abrupt termination of X due to executing break.

Funcon break :⇒ empty-type
  ⇝ abrupt(broken)

break abruptly terminates all enclosing computations until it is handled.

Funcon handle-break(_ :⇒ null-type) :⇒ null-type

*Suggestions for improvement: `plancomps@gmail.com`.
Issues: `https://github.com/plancomps/CBS-beta/issues`.

handle-break(X) terminates normally when X terminates abruptly for the reason broken.

$$\textit{Rule}\ \frac{X \xrightarrow{\text{abrupted}(\ )} X'}{\text{handle-break}(X) \xrightarrow{\text{abrupted}(\ )} \text{handle-break}(X')}$$

$$\textit{Rule}\ \frac{X \xrightarrow{\text{abrupted}(\text{broken})} \_}{\text{handle-break}(X) \xrightarrow{\text{abrupted}(\ )} \text{null-value}}$$

$$\textit{Rule}\ \frac{X \xrightarrow{\text{abrupted}(V :\sim \text{breaking})} X'}{\text{handle-break}(X) \xrightarrow{\text{abrupted}(V)} \text{handle-break}(X')}$$

$$\textit{Rule}\ \ \text{handle-break}(\text{null-value}) \rightsquigarrow \text{null-value}$$