CS 333
Extra Credit Project
BF Abstract RTN

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Memory

PC<14..0>:	Program counter (address of next instruction)
DC<14..0>:	Data counter (address of current data)
IR<7..0>:	Instruction register
M[0..29,999]<7..0>:	30,000 bytes of addressable memory
Run:	1-bit run-halt indicator
Strt:	Start signal

Instruction Interpretation

(instruction_interpretation := (
¬Run∧Strt → Run ← 1; instruction_interpretation):
Run → (IR ← M[PC]: PC ← PC + 1; instruction_execution):

Instruction Execution

instruction_execution := (
> (:= IR= '>') → DC ← DC + 1:
< (:= IR= '<') → DC ← DC − 1:
\+ (:= IR= '+') → M[DC] ← M[DC] + 1:
− (:= IR= '−') → M[DC] ← M[DC] − 1:
. (:= IR= '.') → Output ← M[DC]:
, (:= IR= ',') → M[DC] ← Input:
[(:= IR= '[') → M[DC]=0 → PC ← address of matching ']':
] (:= IR= ']') → PC ← address of matching '['
);
instruction_interpretation):