

PL syntax X
semantics ?

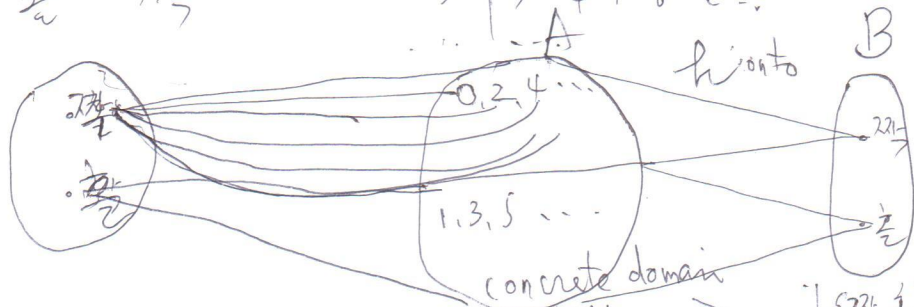
Abstract interpretation

$(\mathbb{Z}, +)$

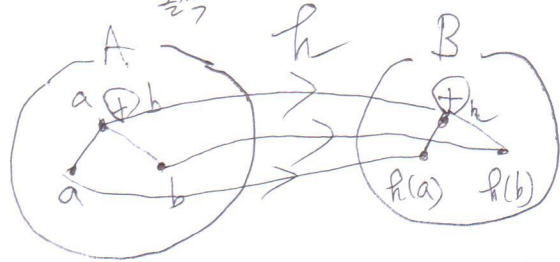
\mathbb{Z}	\mathbb{Z}	\mathbb{Z}
\mathbb{Z}	\mathbb{Z}	\mathbb{Z}
\mathbb{Z}	\mathbb{Z}	\mathbb{Z}

$(\mathbb{N}, +)$

	0, 1, 2, 3, ...
0	0 1 2 3 ...
1	1 2 3 4 ...
2	2 3 4 5 ...
3	3 4 5 6 ...



$$\forall a, b \in \mathbb{N}, h(a) \oplus h(b) = h(a+b)$$



(A, \oplus)

(B, \oplus_h)

i7 quad core 3.4G
Flow thread

vs Intel 8080

2 MHz
0.5 μsec

4 cycles/ins - 2 μsec
5
20

mem. 64 KB
 $\frac{4}{2^{16}}$

→ 10Msec