Systemnahe Informatik

Übungsgruppe Xeon Phi

Dominik Walter

Sommersemester 2018

Intel Skylake

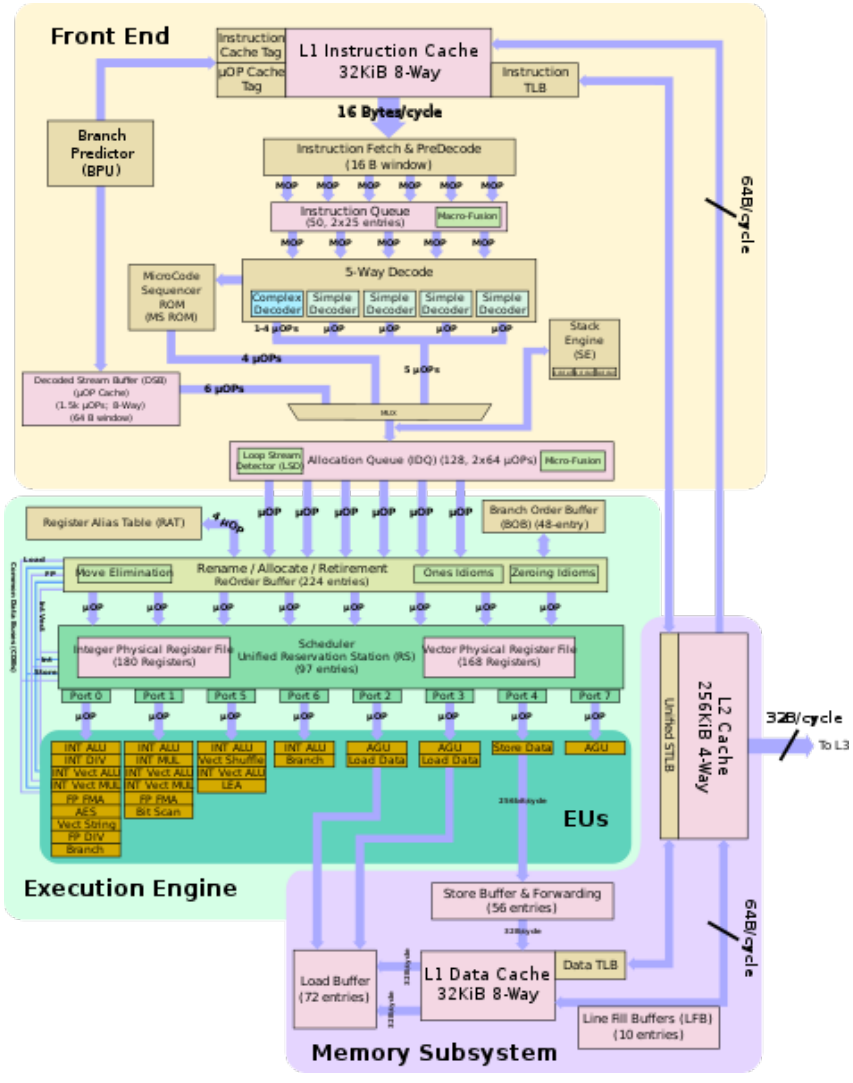
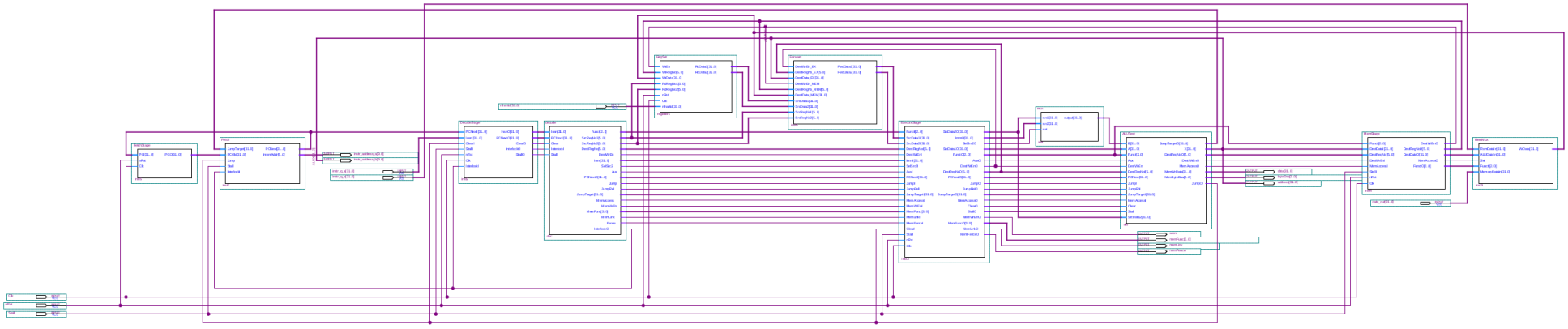
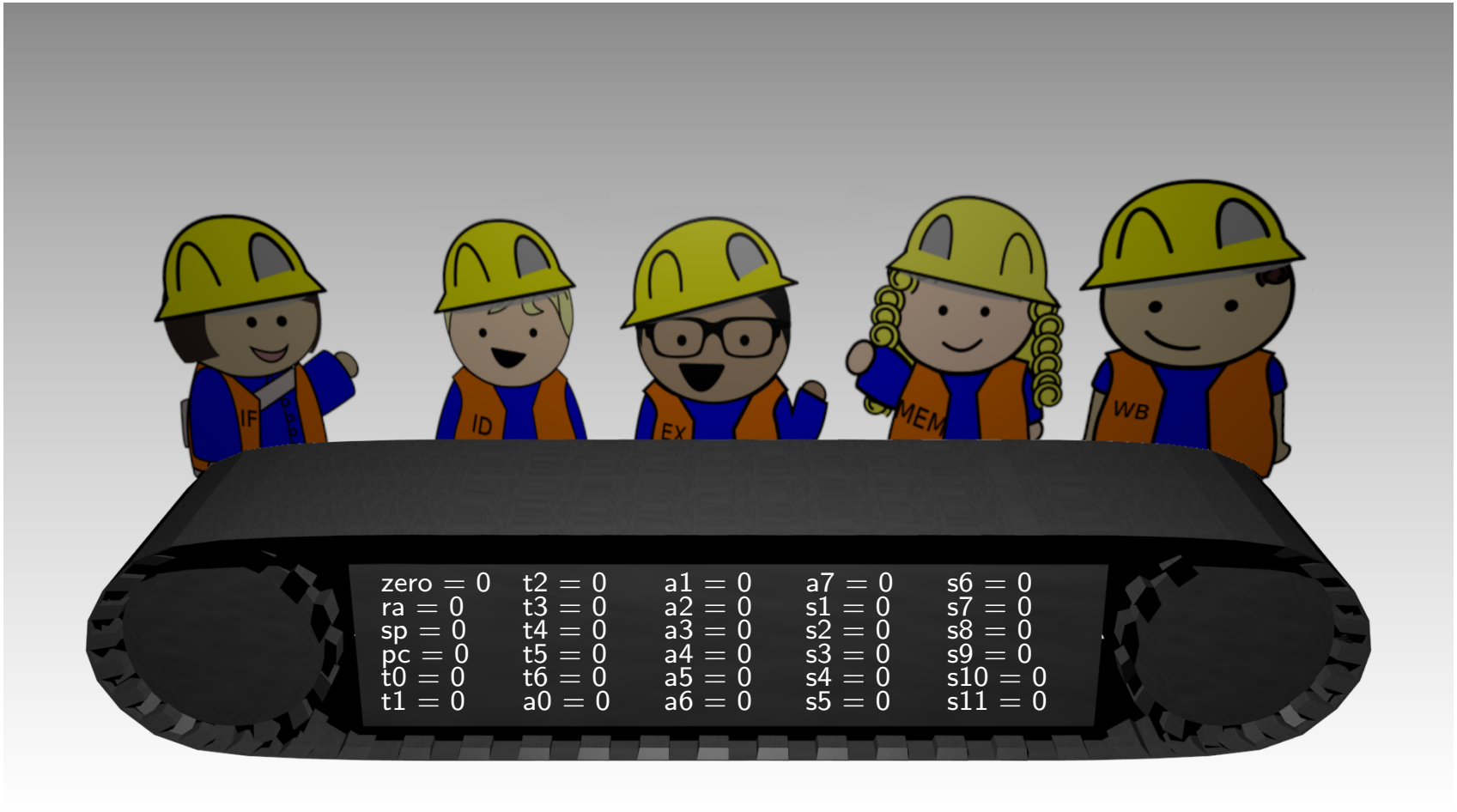


Figure: https://en.wikichip.org/wiki/File:skylake_block_diagram.svg

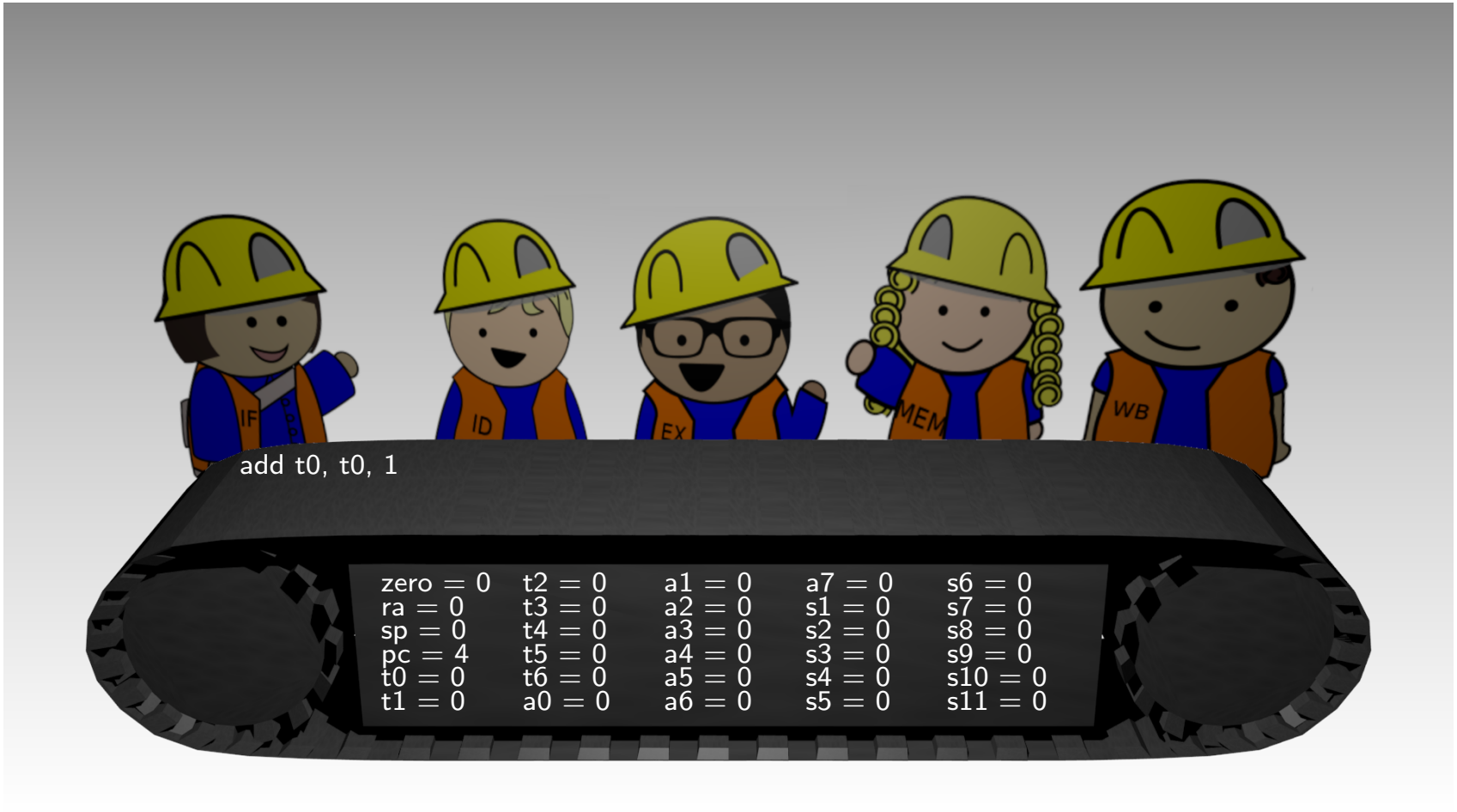
RISCV Pipeline



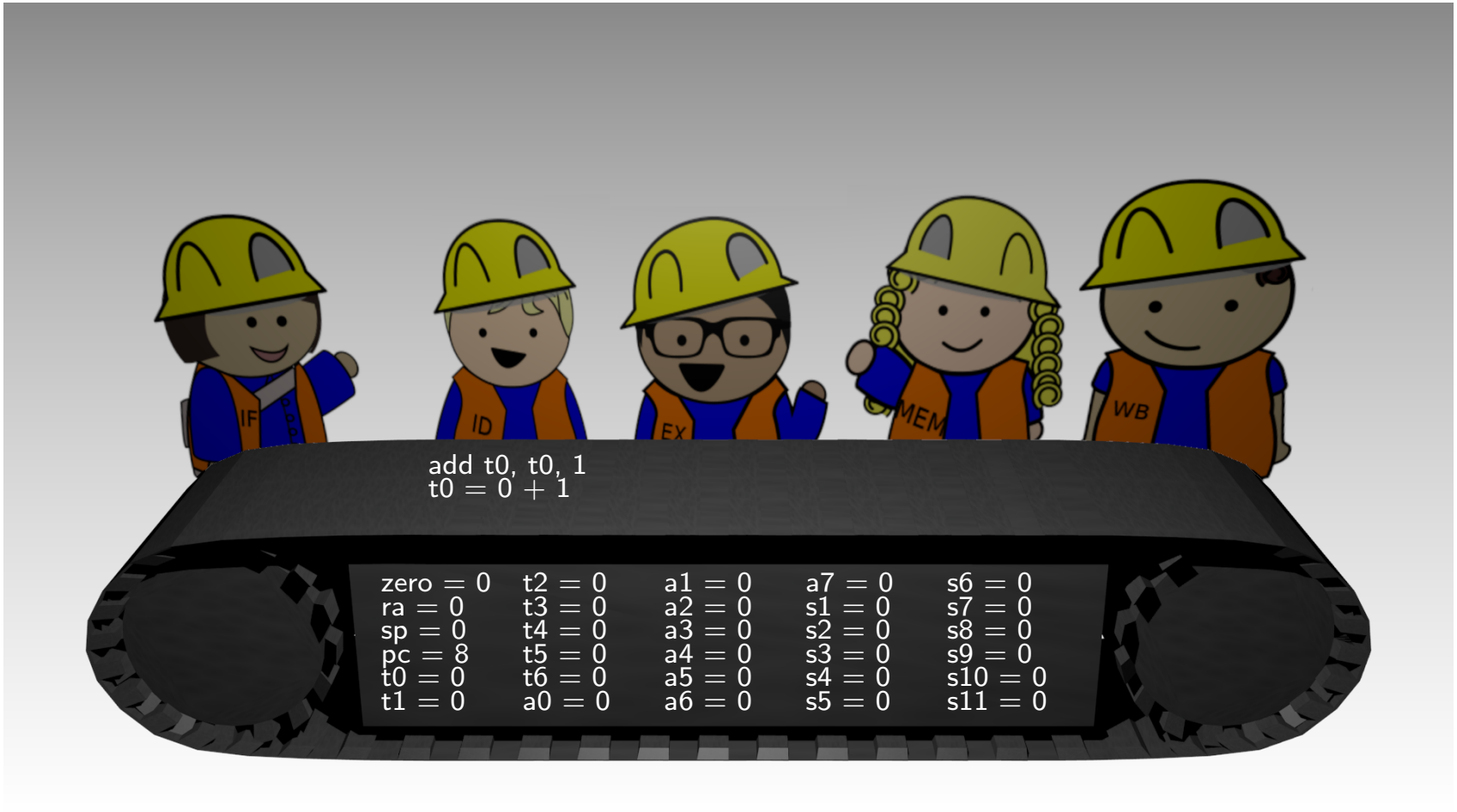
RISCV Pipeline



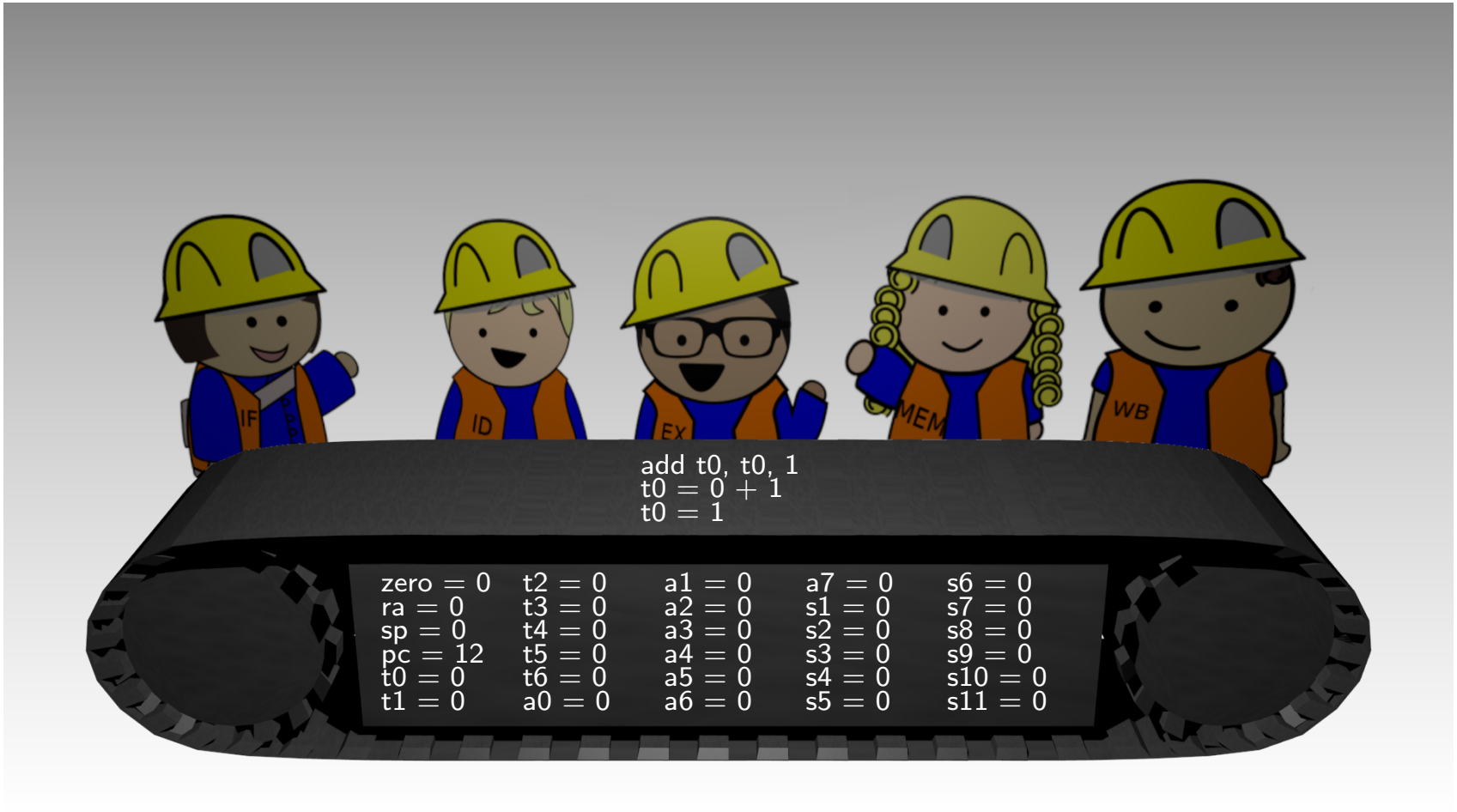
Instruction Fetch



Instruction Decode



Execute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ID
EX
MEM
WB
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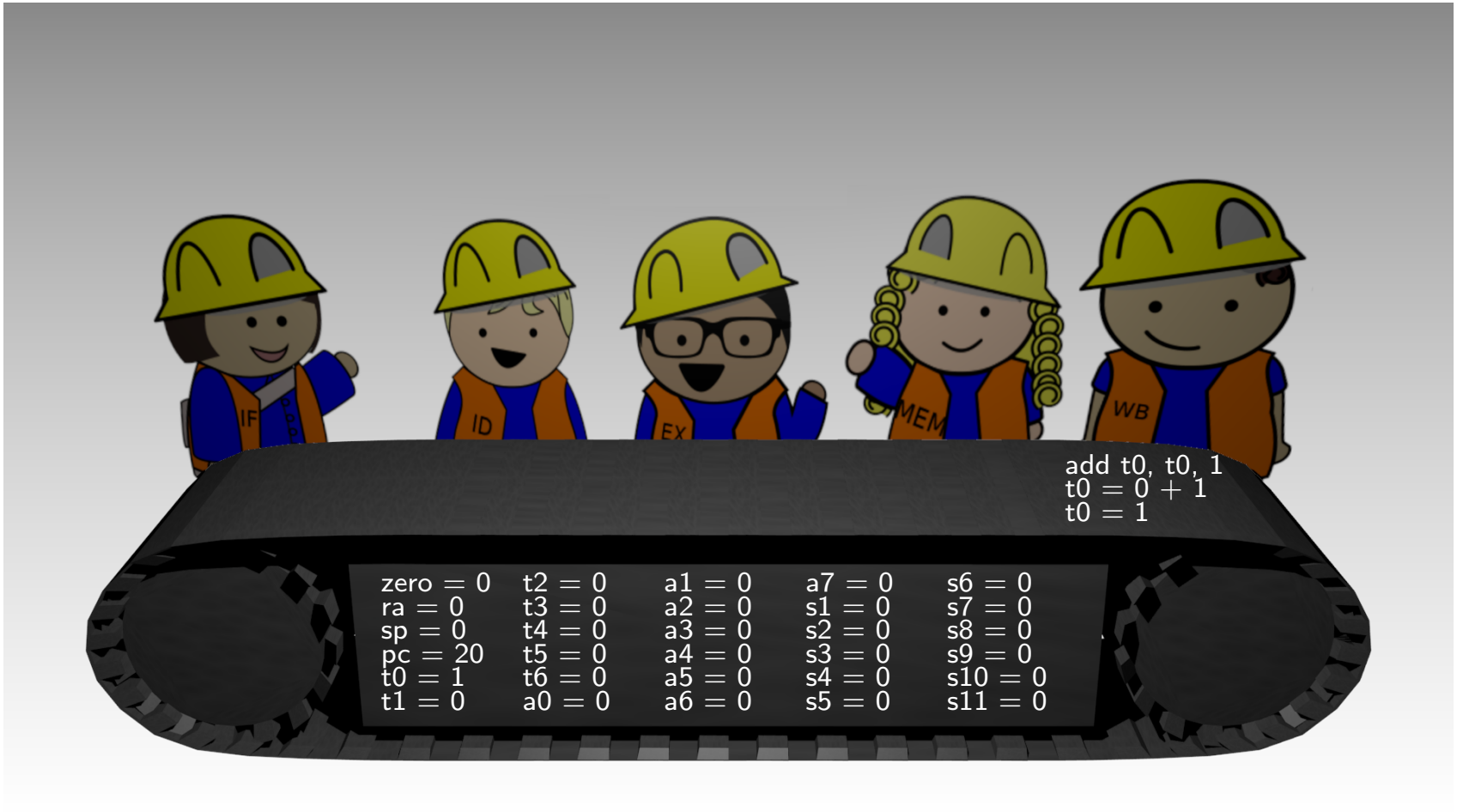
t0 = 1
zero = 0
ra = 0
sp = 0
pc = 12
t0 = 0
t1 = 0
t2 = 0
t3 = 0
t4 = 0
t5 = 0
t6 = 0
a0 = 0
a1 = 0
a2 = 0
a3 = 0
a4 = 0
a5 = 0
a6 = 0
a7 = 0
s1 = 0
s2 = 0
s3 = 0
s4 = 0
s5 = 0
s6 = 0
s7 = 0
s8 = 0
s9 = 0
s10 = 0
s11 = 0

Memory


IF
ID
EX
MEM
WB
add t0, t0, 1
t0 = 0 + 1
t0 = 1
zero = 0
ra = 0
sp = 0
pc = 16
t0 = 0
t1 = 0
t2 = 0
t3 = 0
t4 = 0
t5 = 0
t6 = 0
a0 = 0
a1 = 0
a2 = 0
a3 = 0
a4 = 0
a5 = 0
a6 = 0
a7 = 0
s1 = 0
s2 = 0
s3 = 0
s4 = 0
s5 = 0
s6 = 0
s7 = 0
s8 = 0
s9 = 0
s10 = 0
s11 = 0

Writeback


IF
ID
EX
MEM
WB
add t0, t0, 1
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t0 = 1
zero = 0
ra = 0
sp = 0
pc = 20
t0 = 1
t1 = 0
t2 = 0
t3 = 0
t4 = 0
t5 = 0
t6 = 0
a0 = 0
a1 = 0
a2 = 0
a3 = 0
a4 = 0
a5 = 0
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s1 = 0
s2 = 0
s3 = 0
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s6 = 0
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s8 = 0
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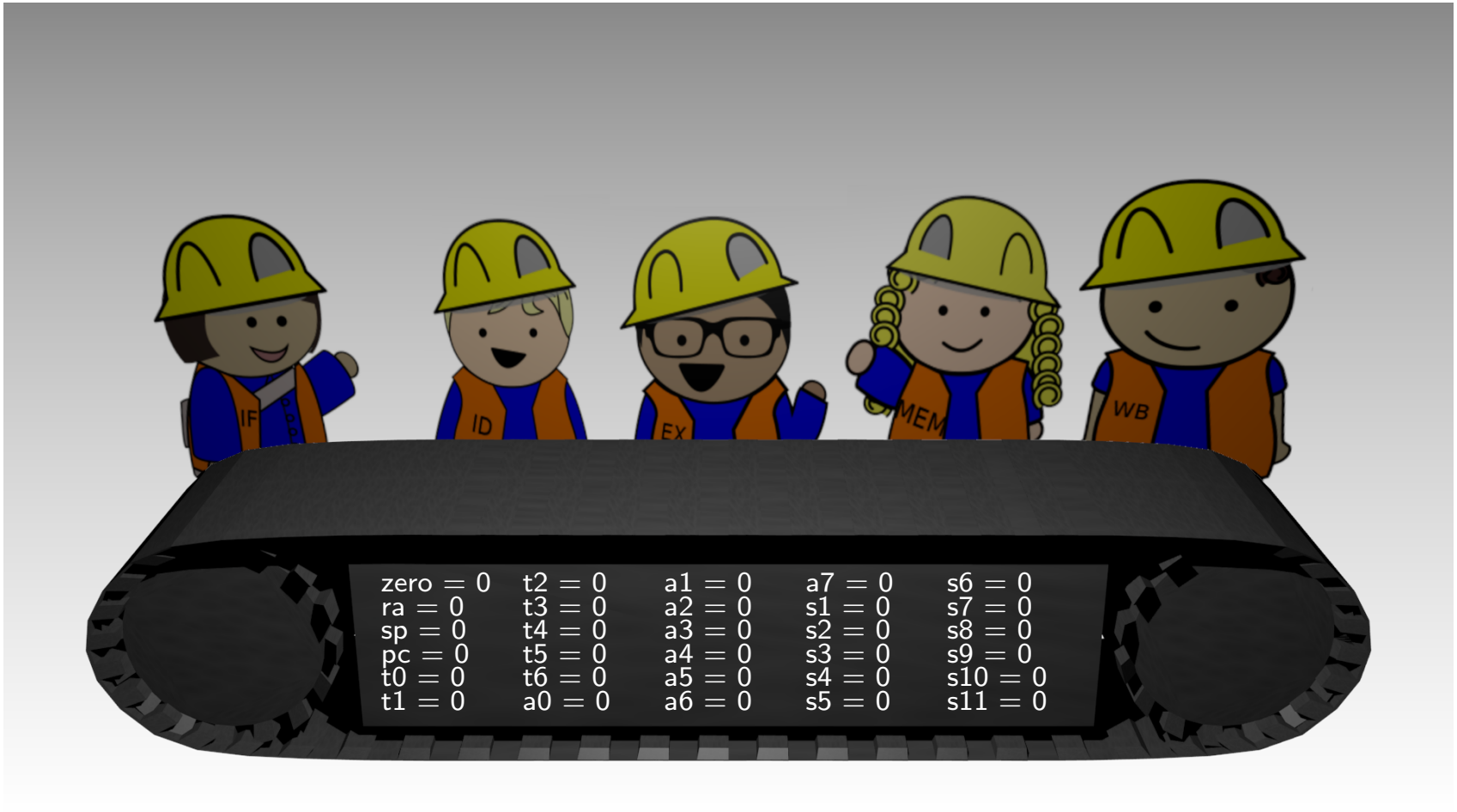
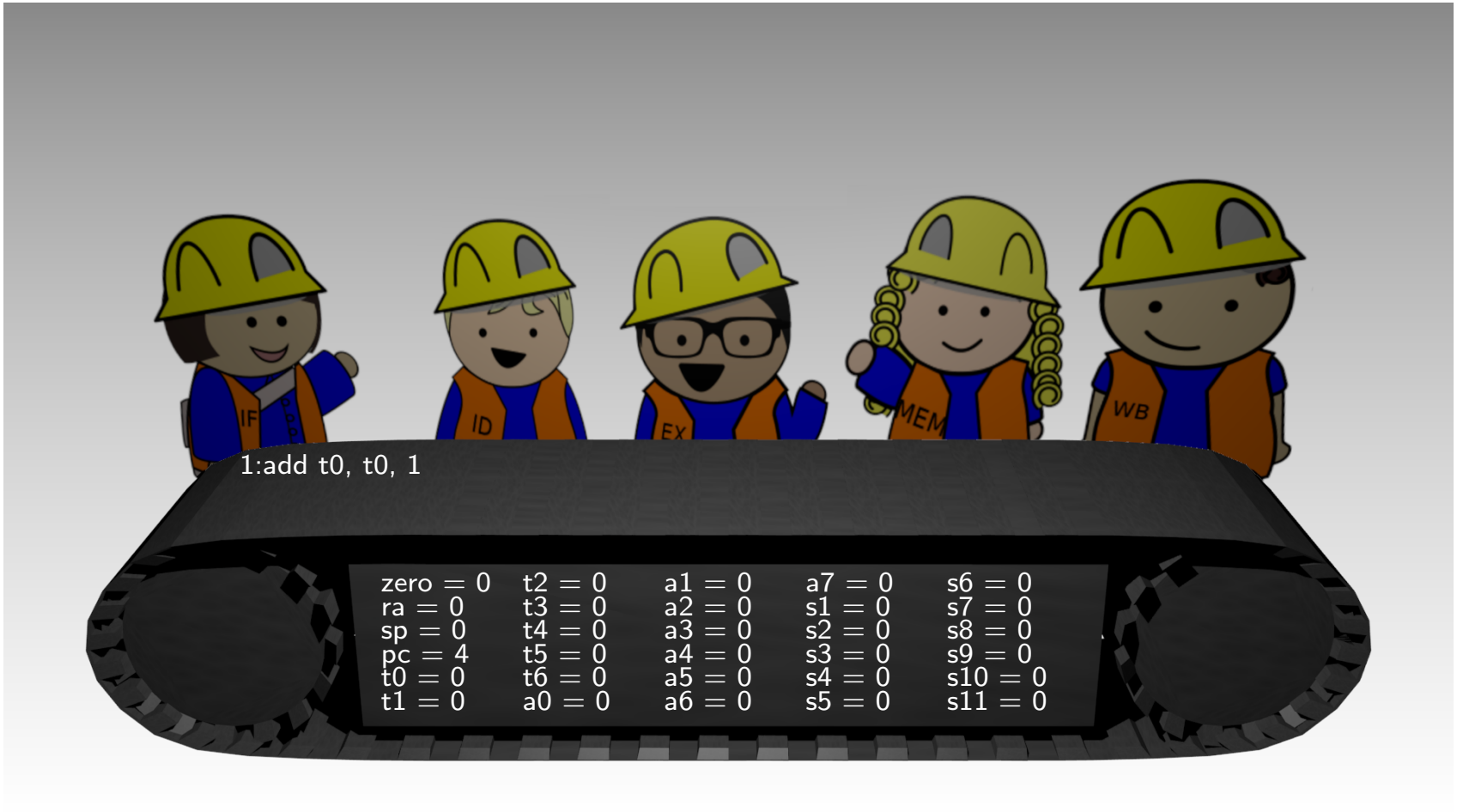
s11 = 0

Pipeline Konflikt: Takt 0



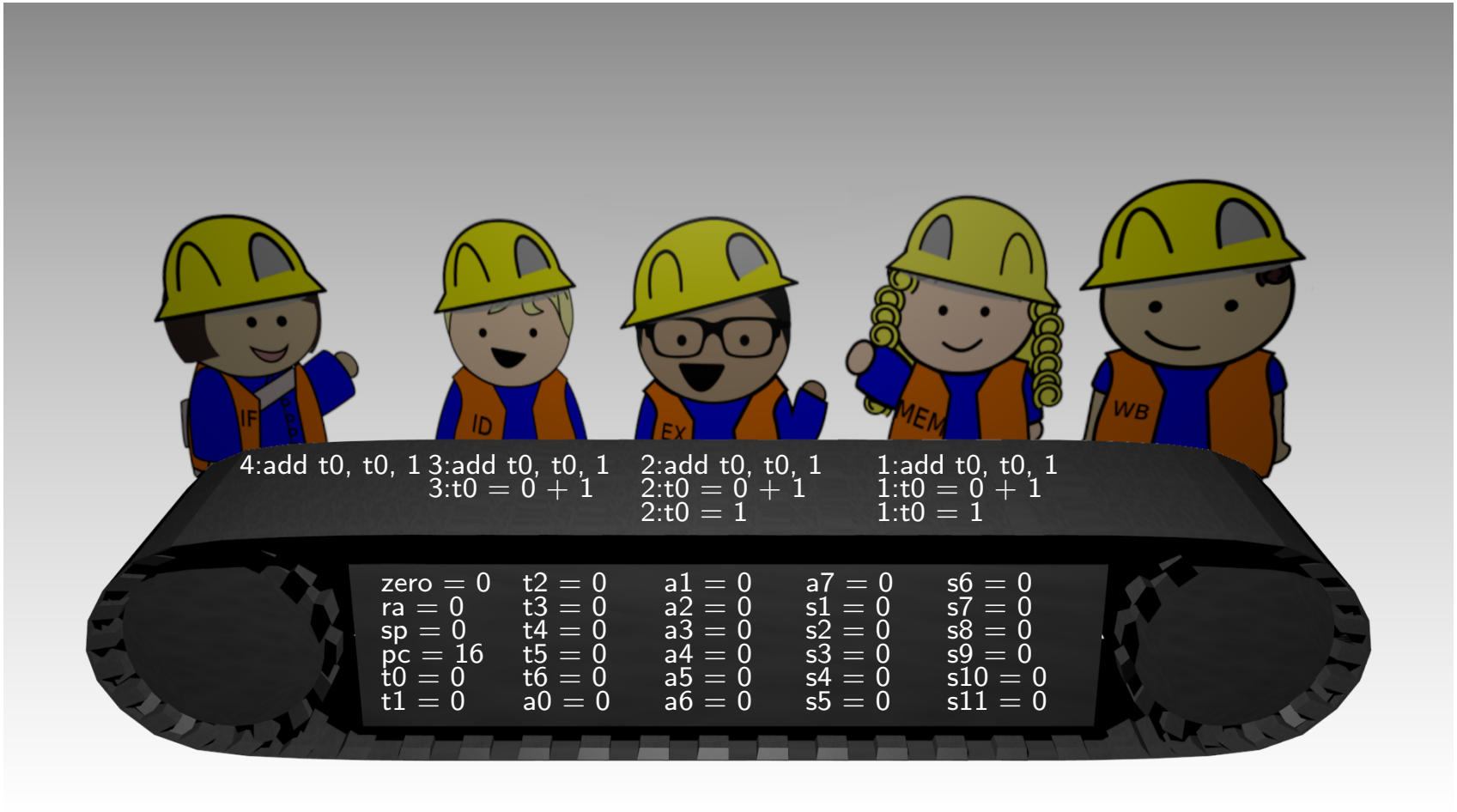
Pipeline Konflikt: Takt 1



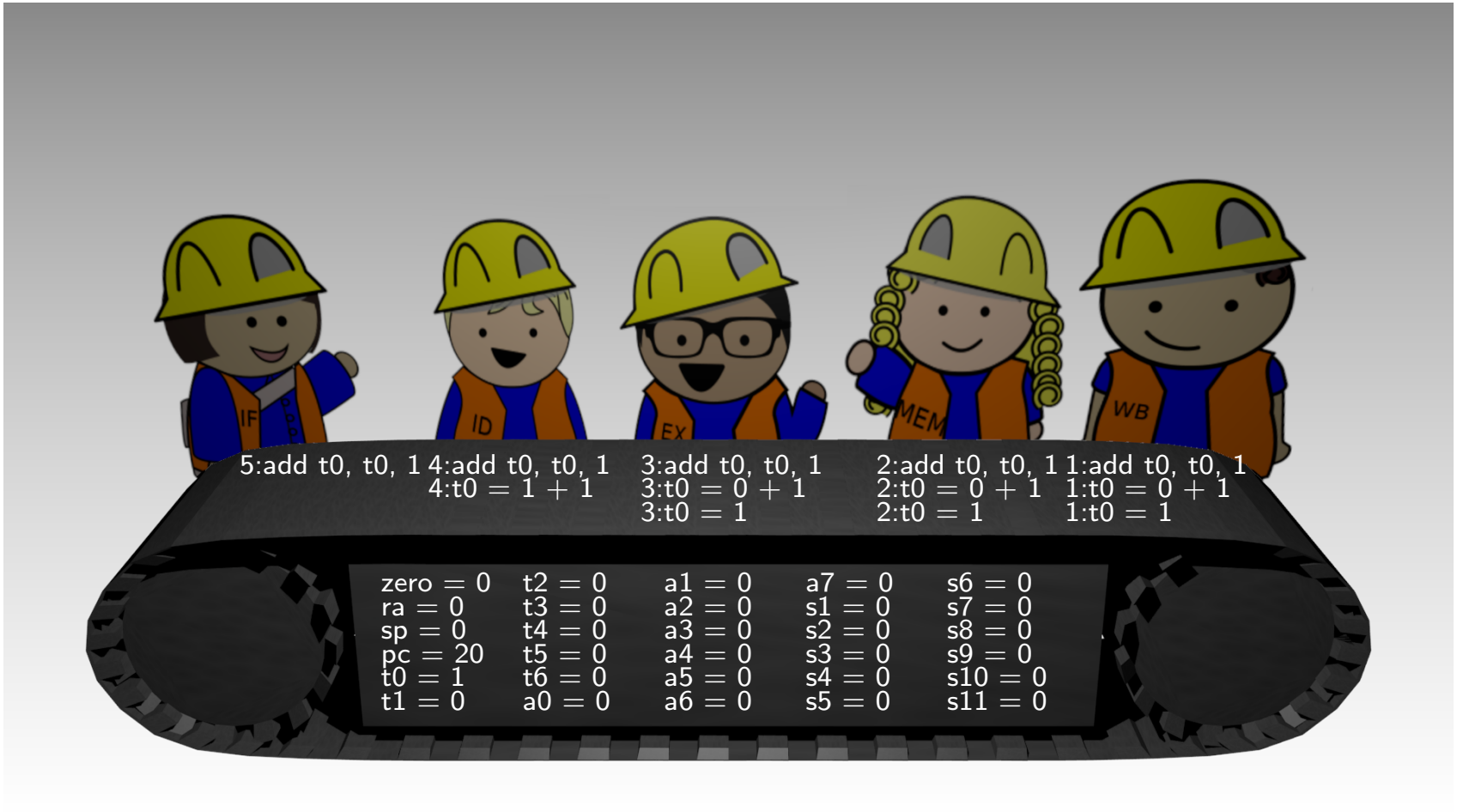
Pipeline Konflikt: Takt 2

Pipeline Konflikt: Takt 3

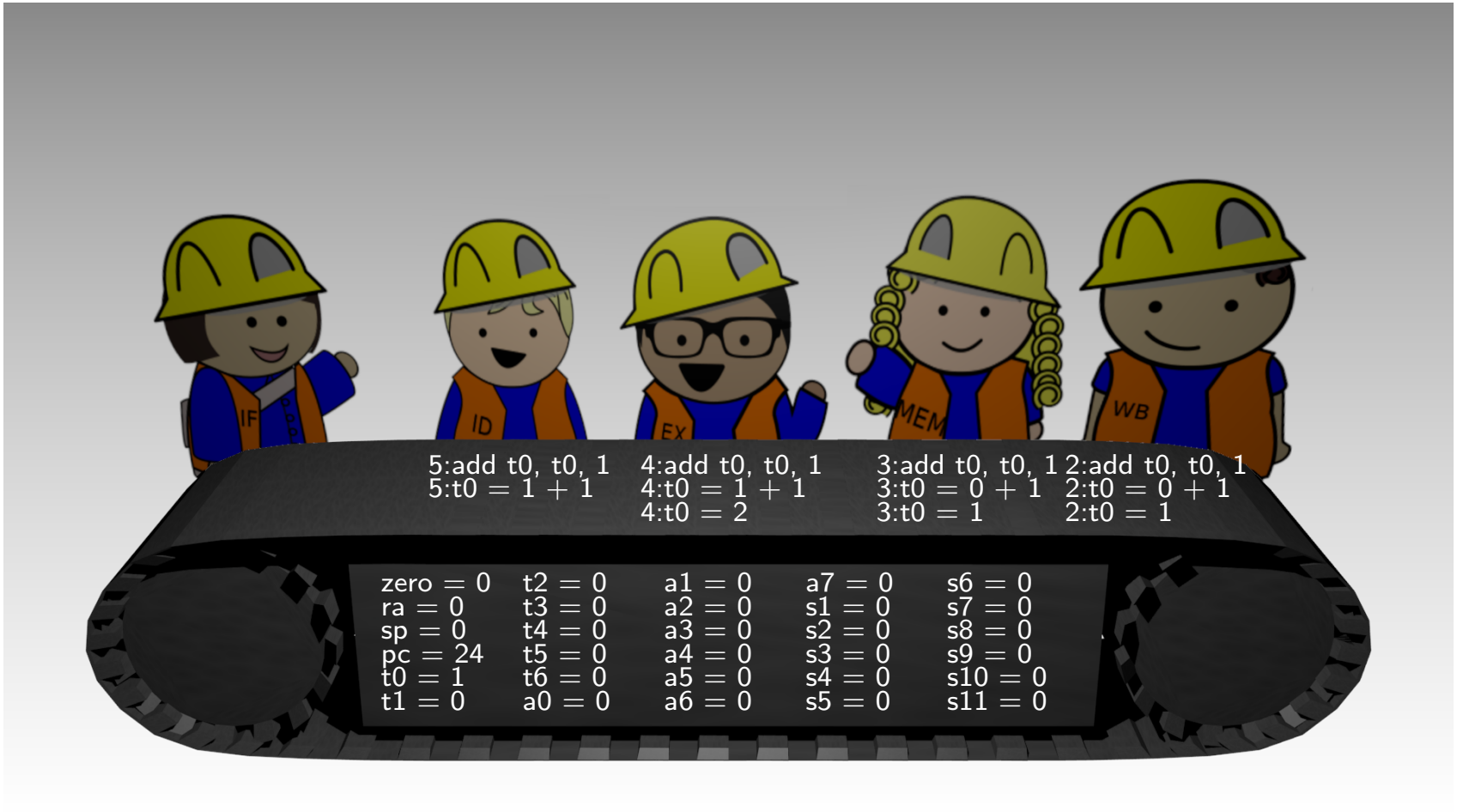
Pipeline Konflikt: Takt 4



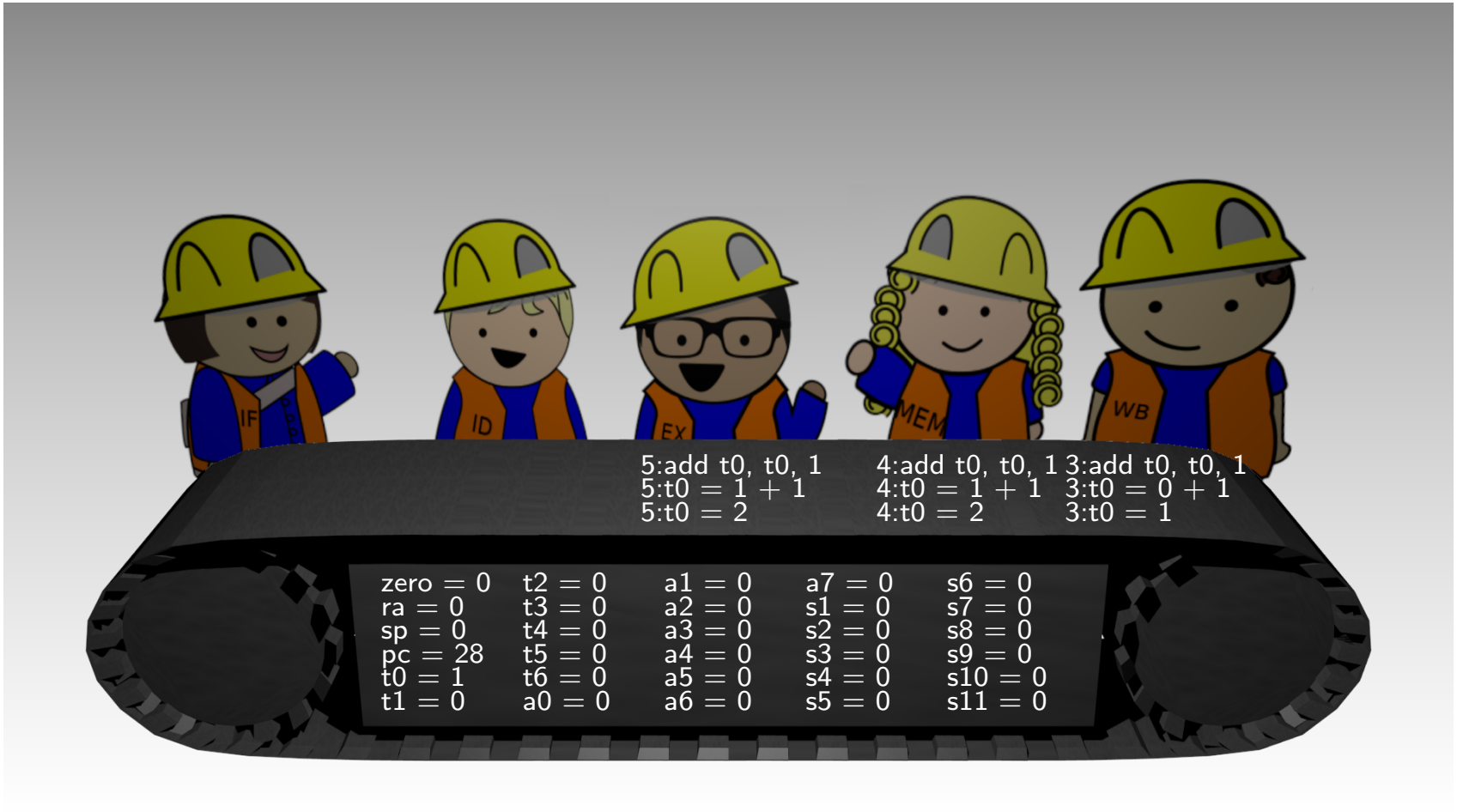
Pipeline Konflikt: Takt 5



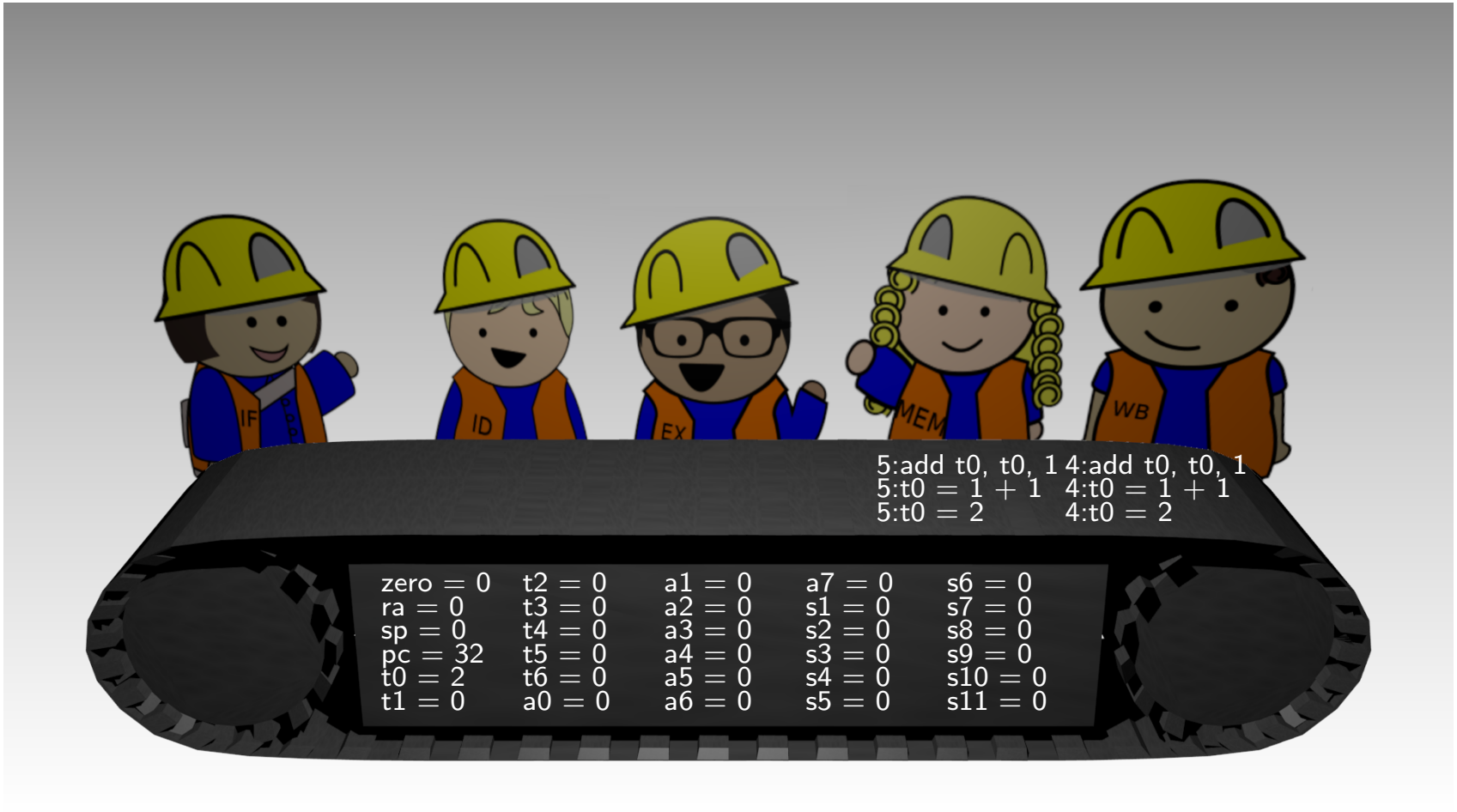
Pipeline Konflikt: Takt 6



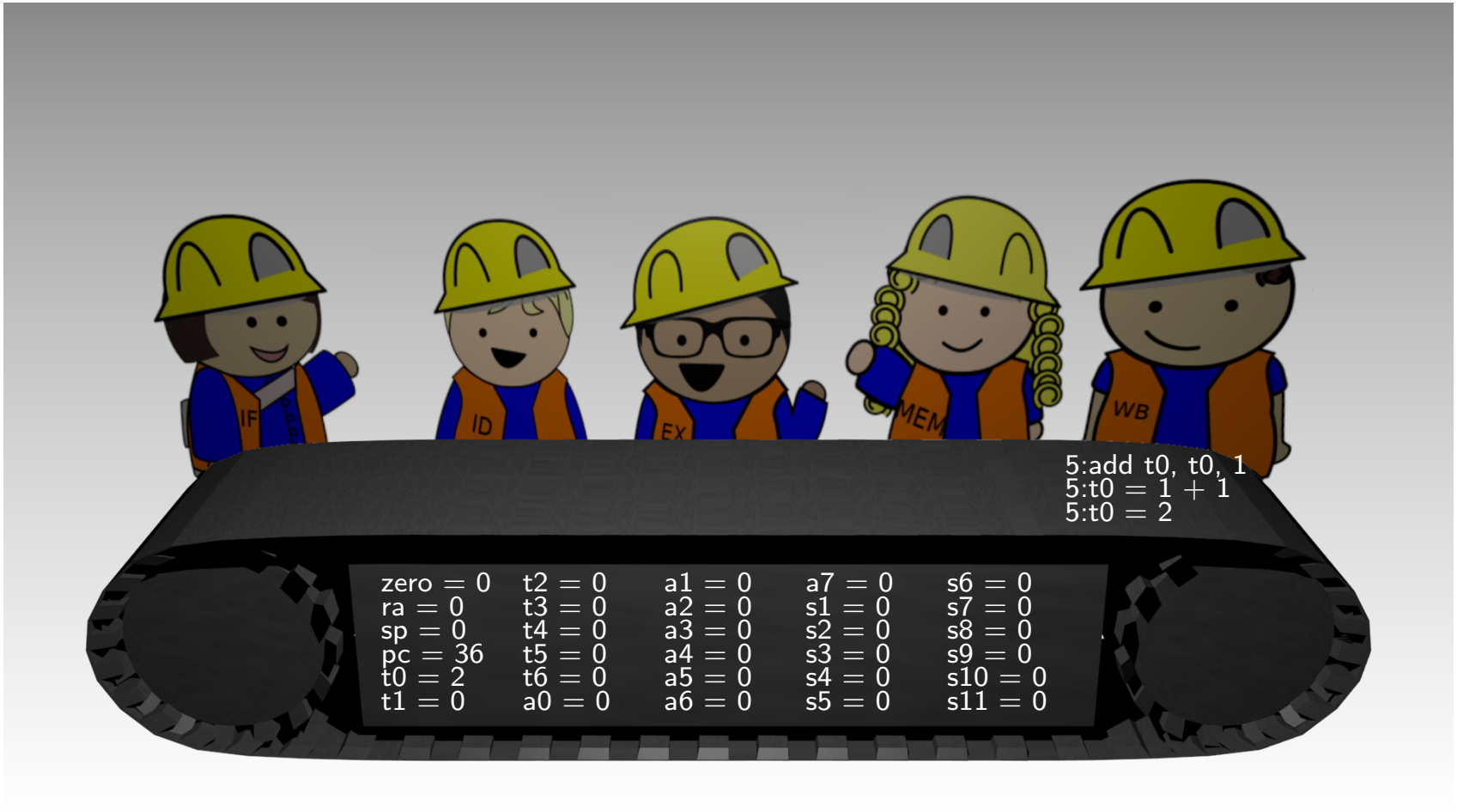
Pipeline Konflikt: Takt 7



Pipeline Konflikt: Takt 8

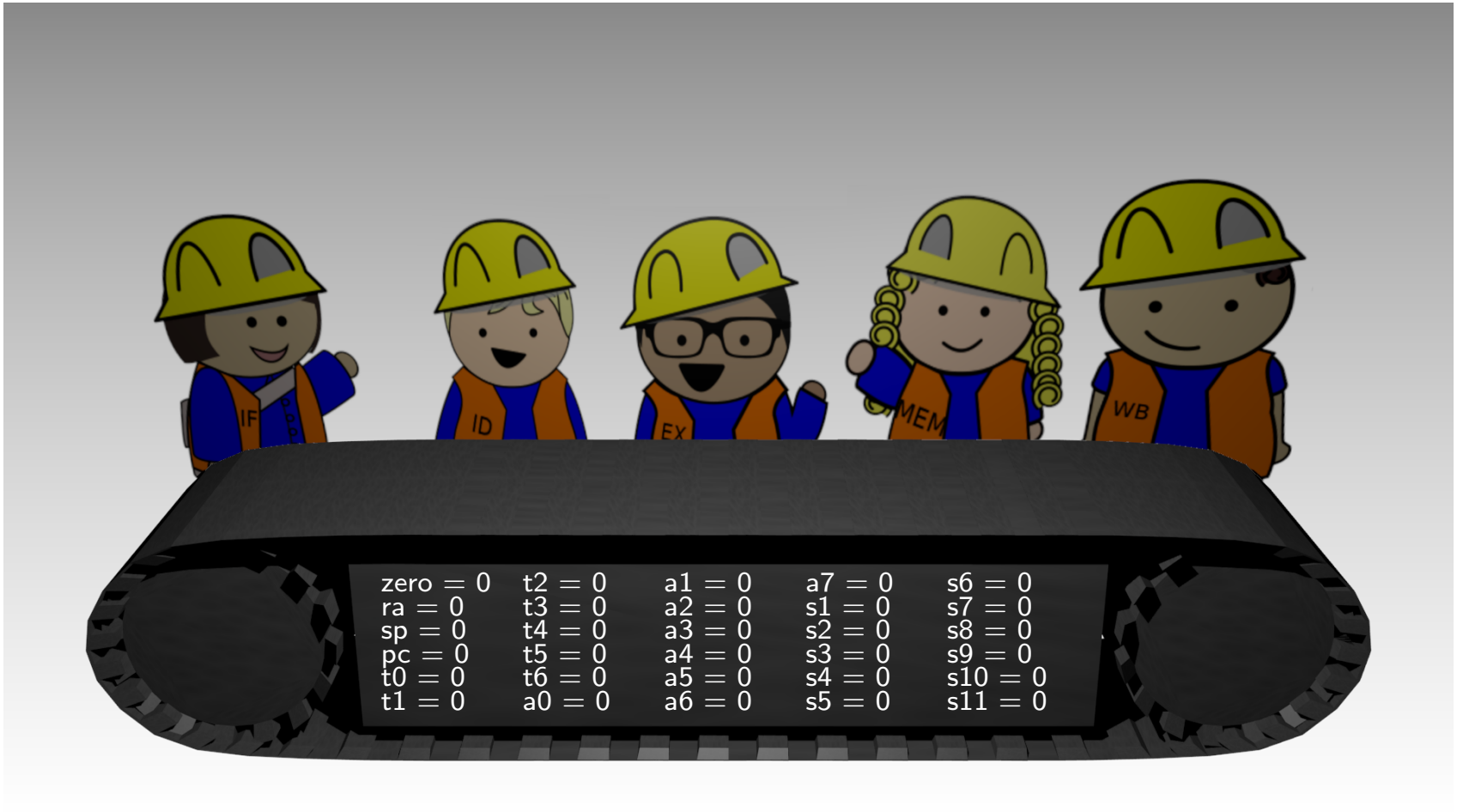


Pipeline Konflikt: Takt 9

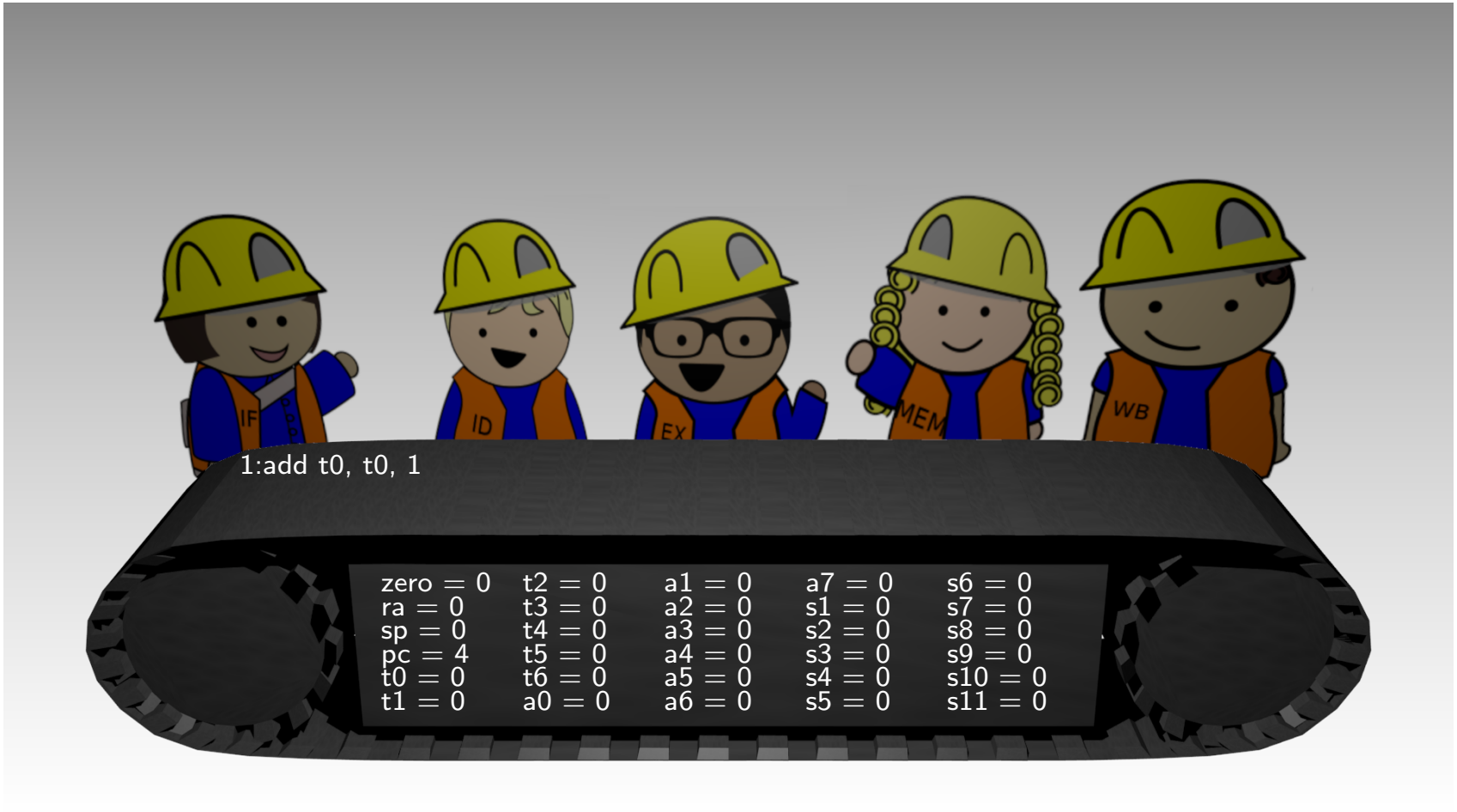


Pipeline Konflikt: Takt 10

Pipeline Konfliktlösung: Takt 0

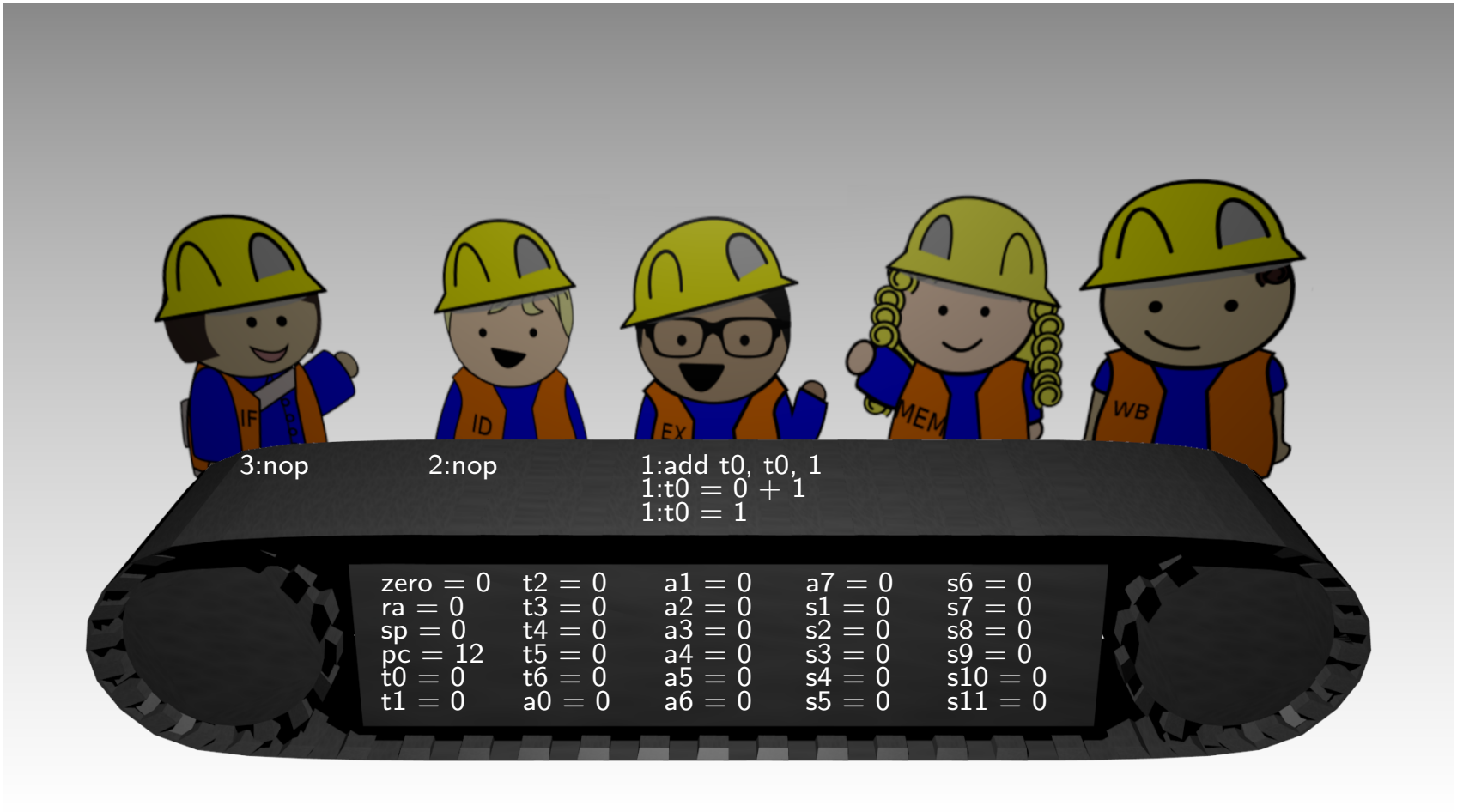


Pipeline Konfliktlösung: Takt 1

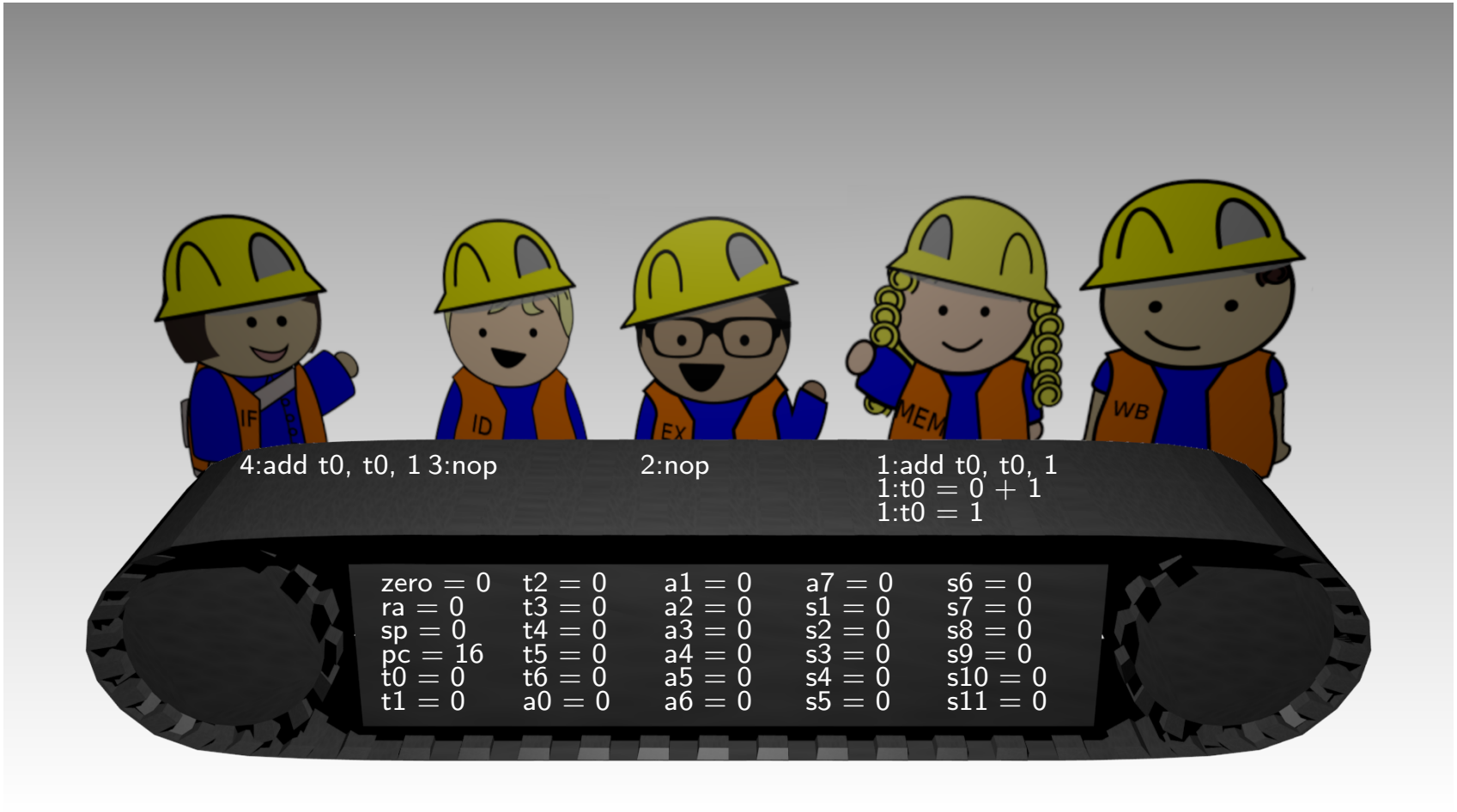


Pipeline Konfliktlösung: Takt 2

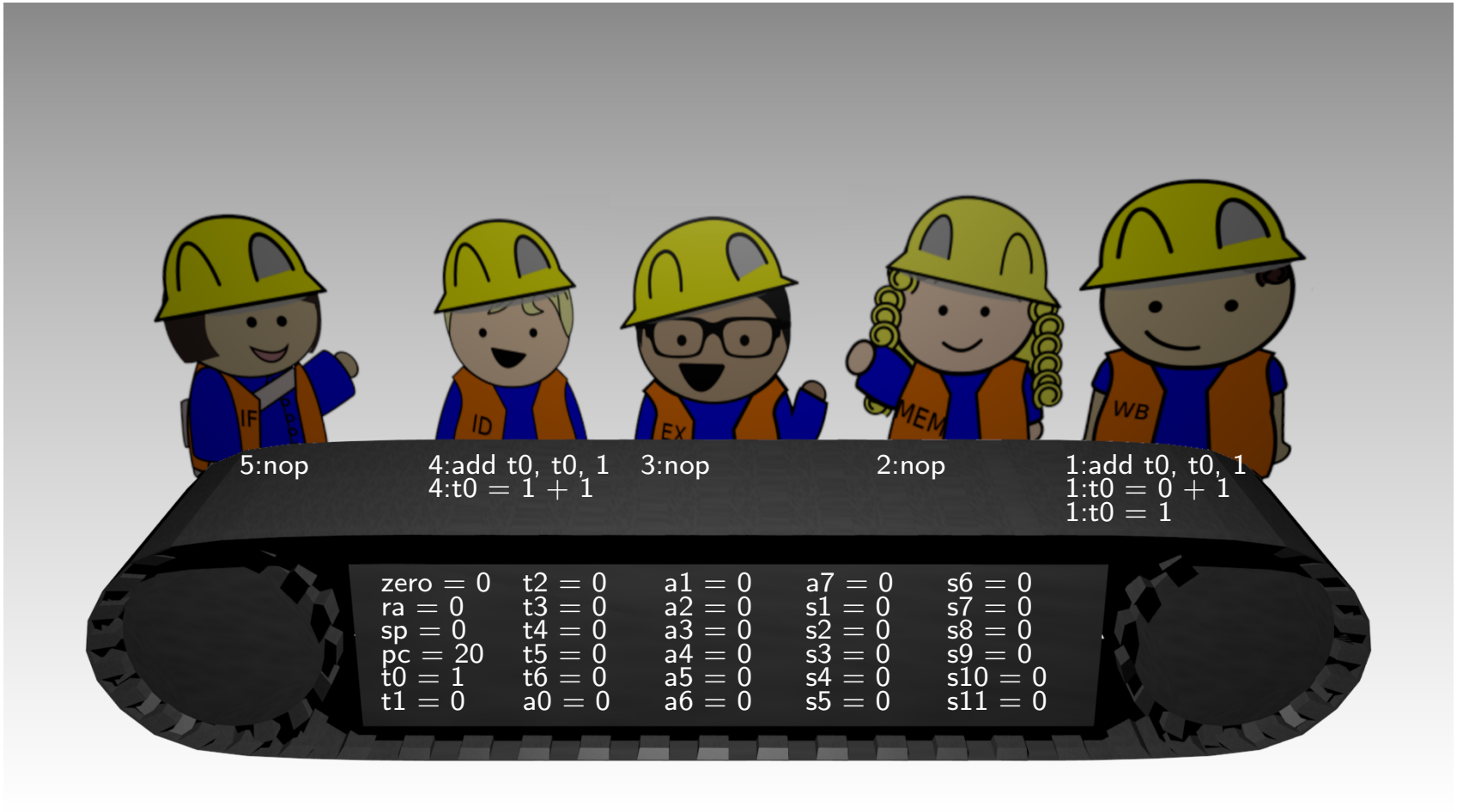
Pipeline Konfliktlösung: Takt 3



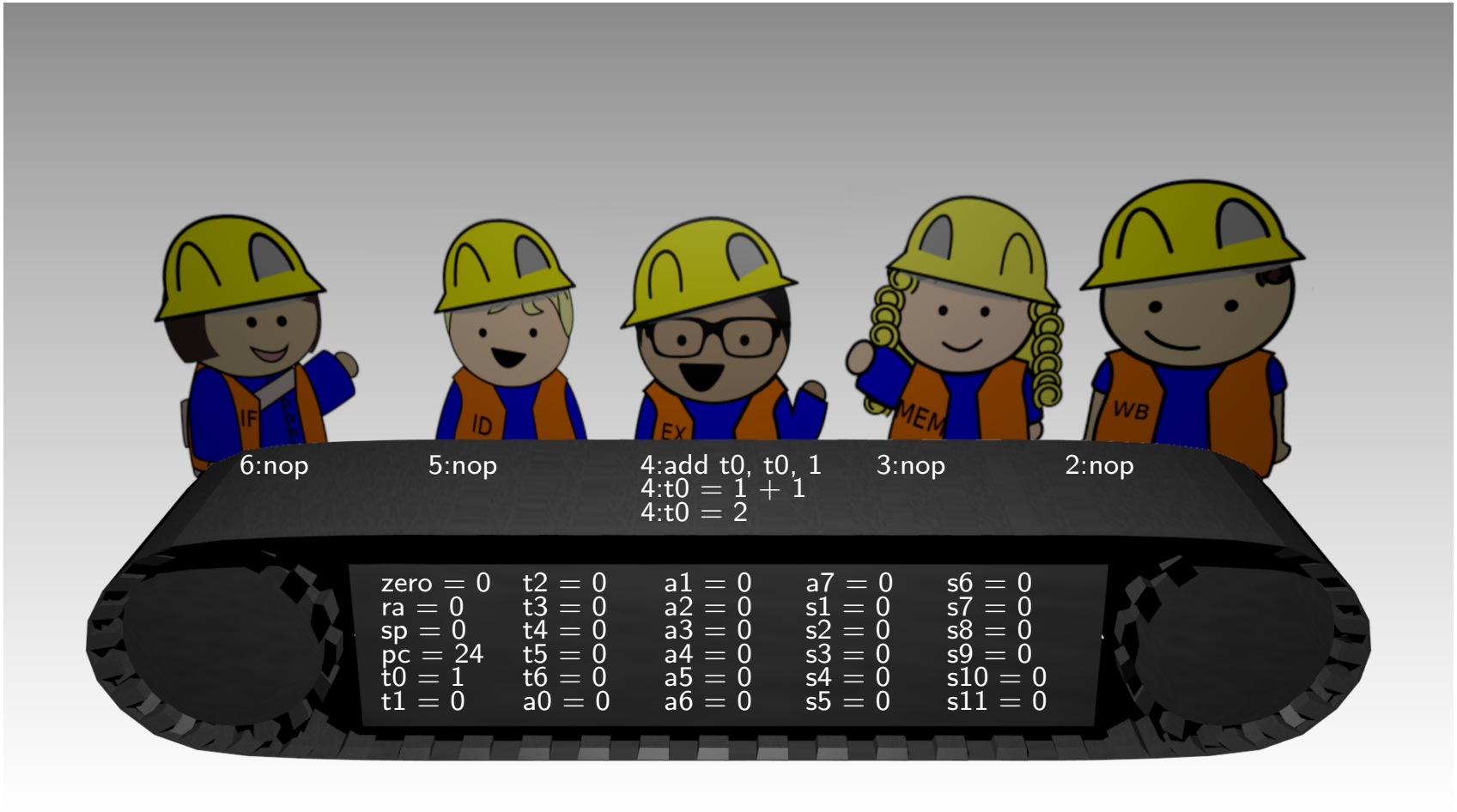
Pipeline Konfliktlösung: Takt 4



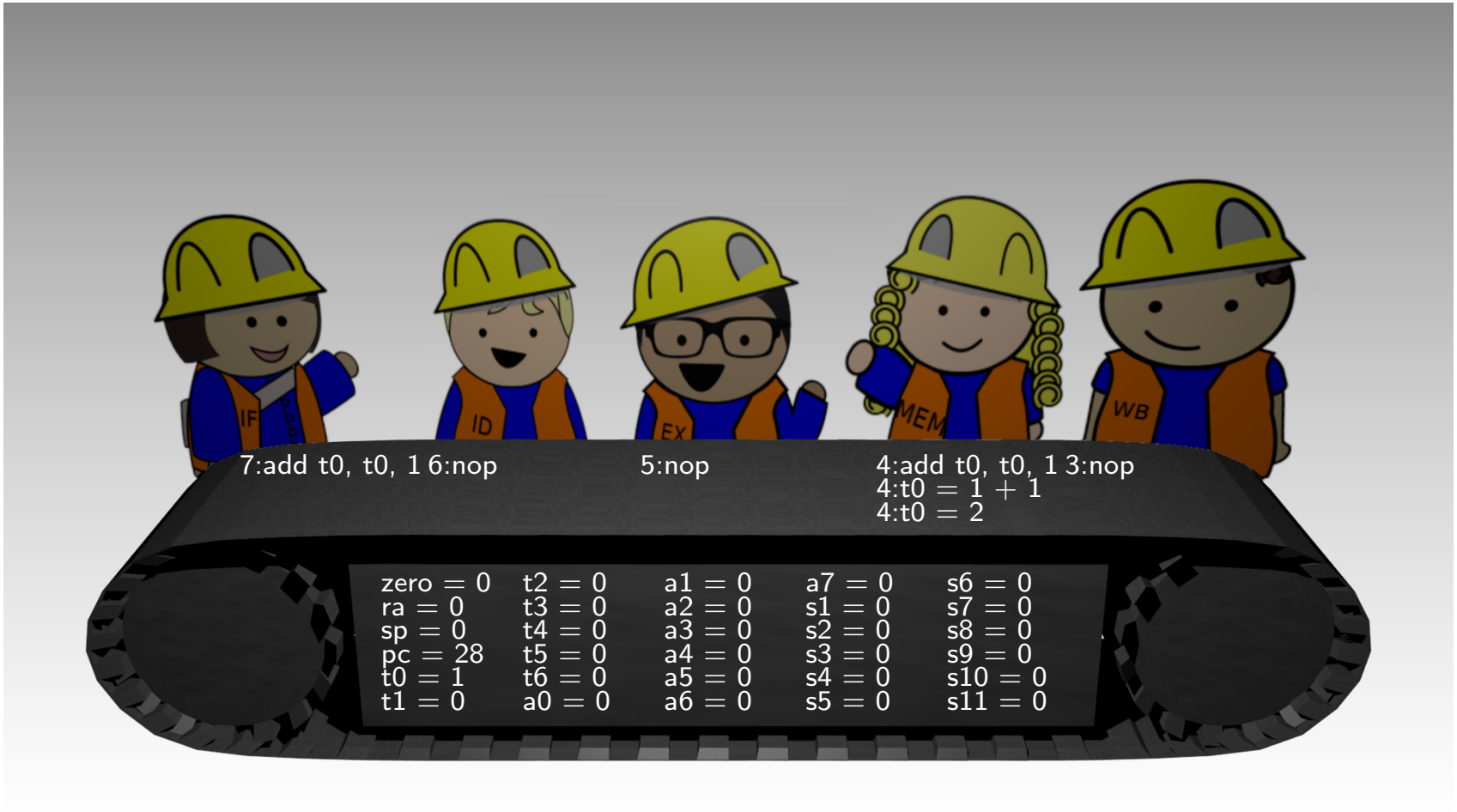
Pipeline Konfliktlösung: Takt 5



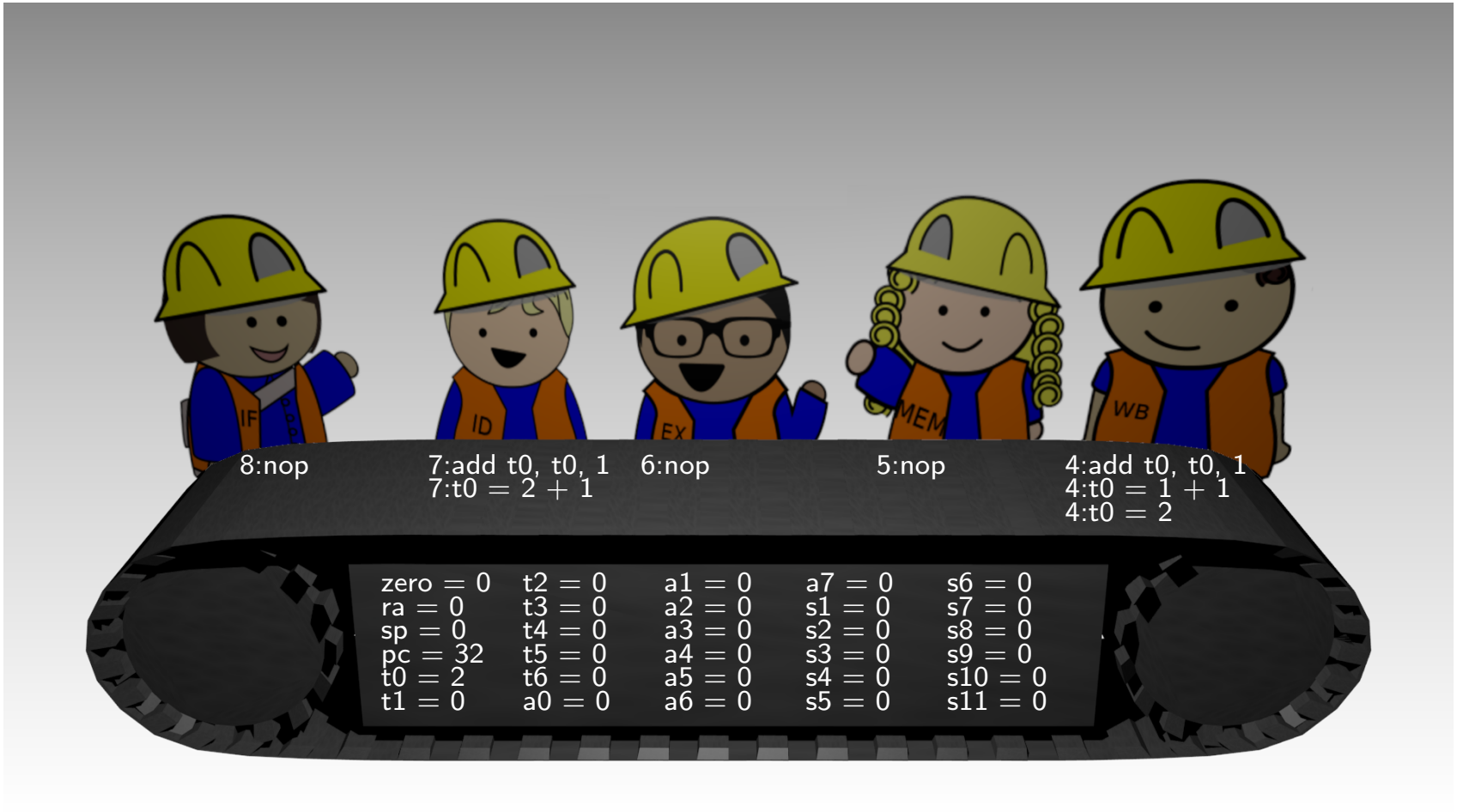
Pipeline Konfliktlösung: Takt 6



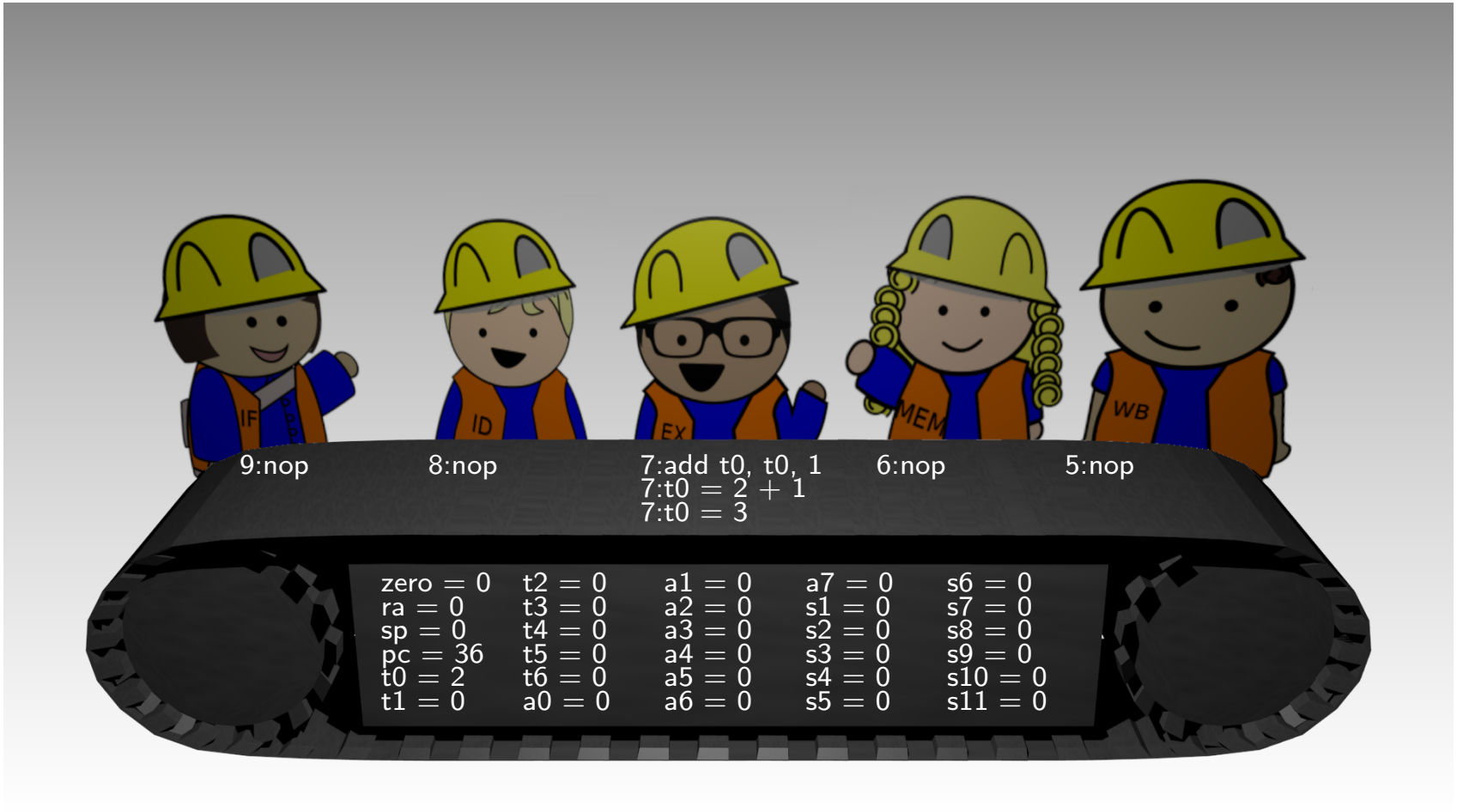
Pipeline Konfliktlösung: Takt 7



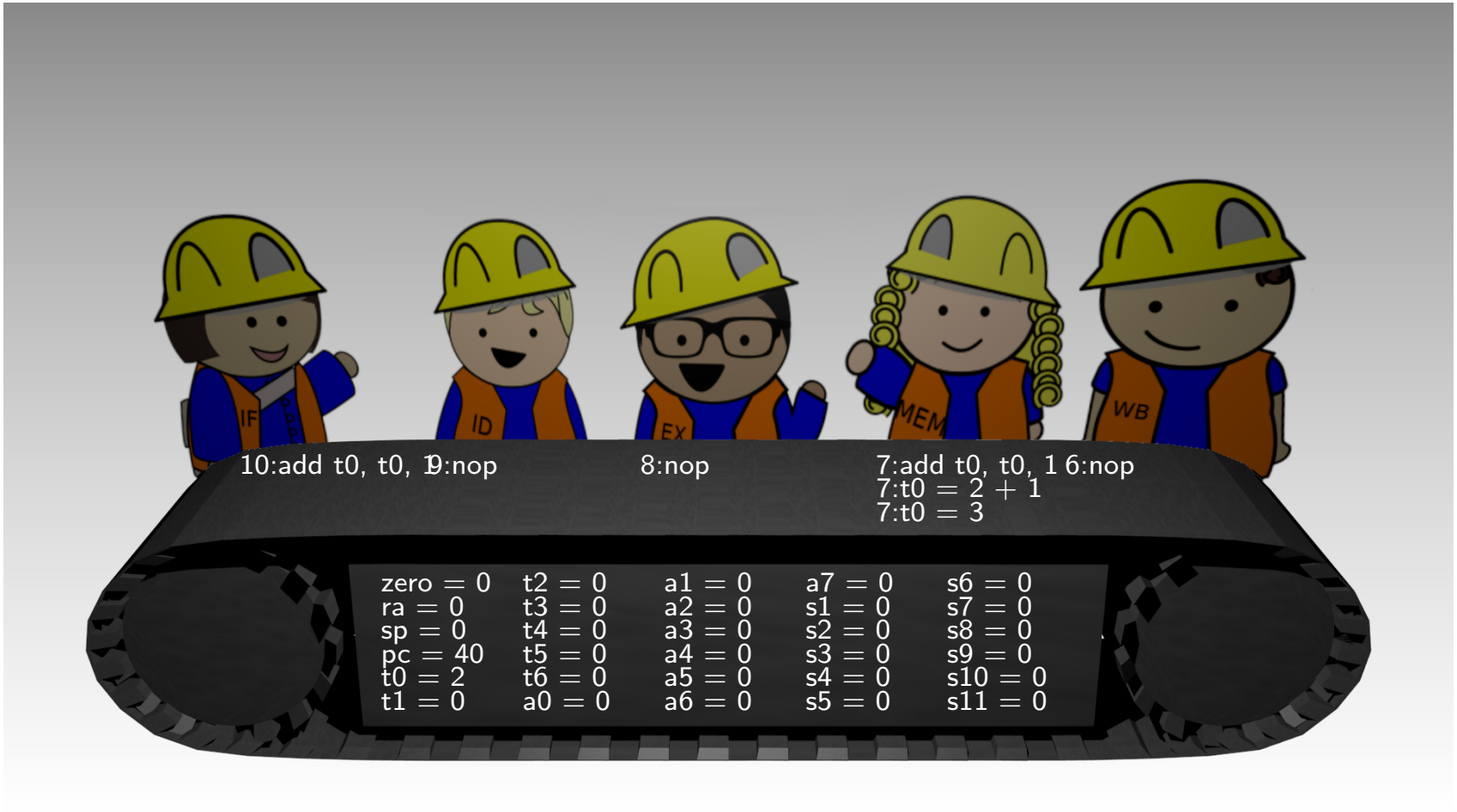
Pipeline Konfliktlösung: Takt 8



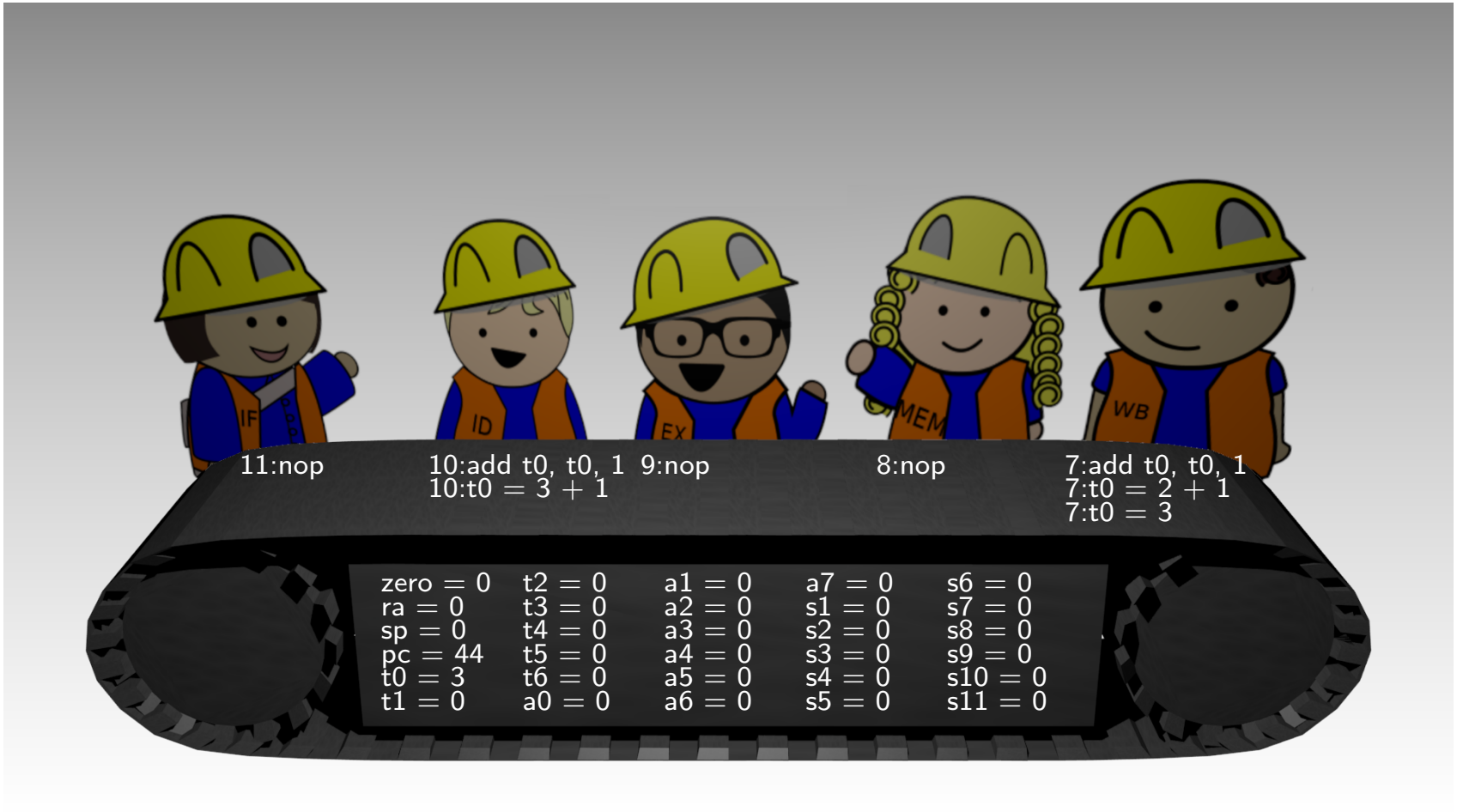
Pipeline Konfliktlösung: Takt 9



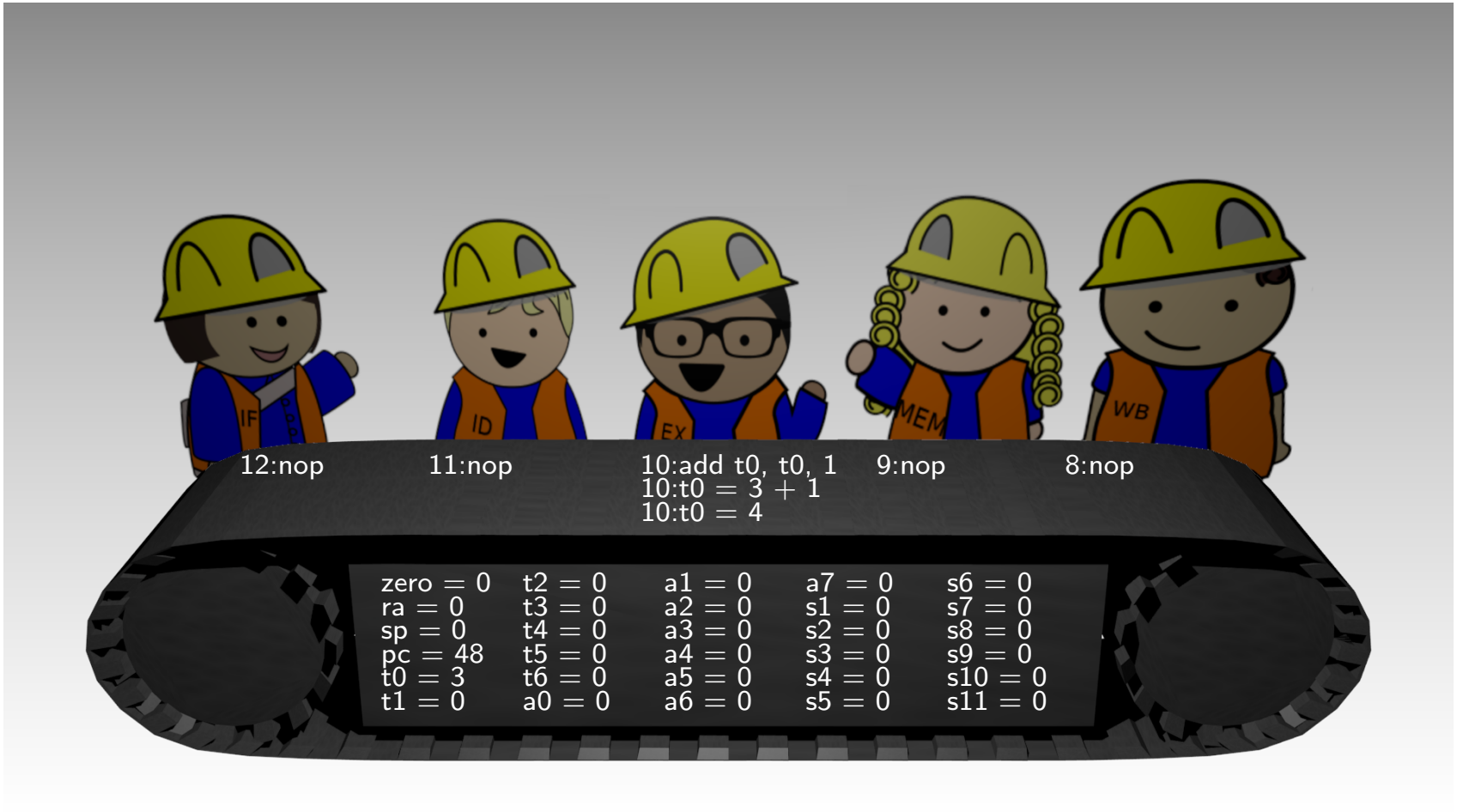
Pipeline Konfliktlösung: Takt 10



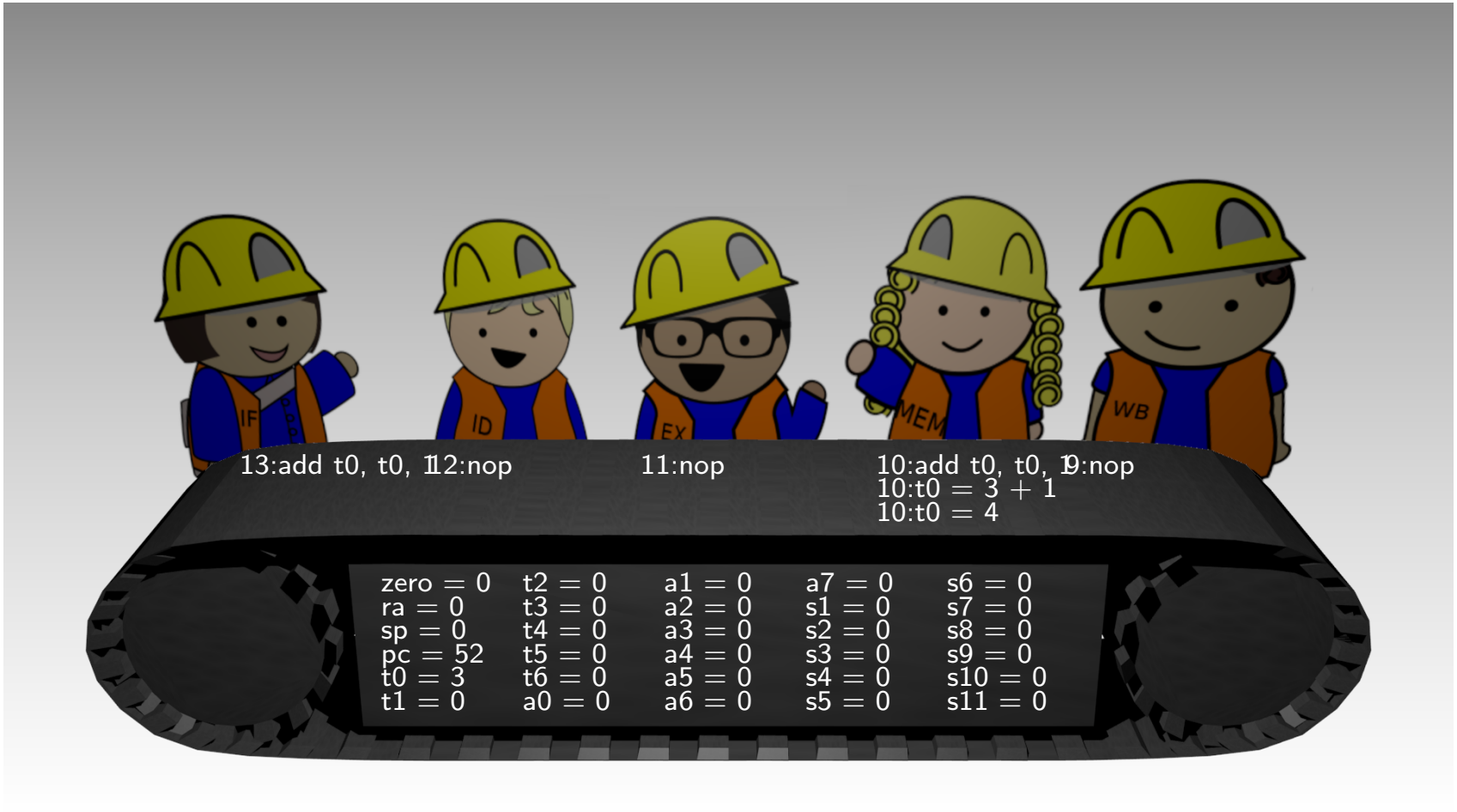
Pipeline Konfliktlösung: Takt 11



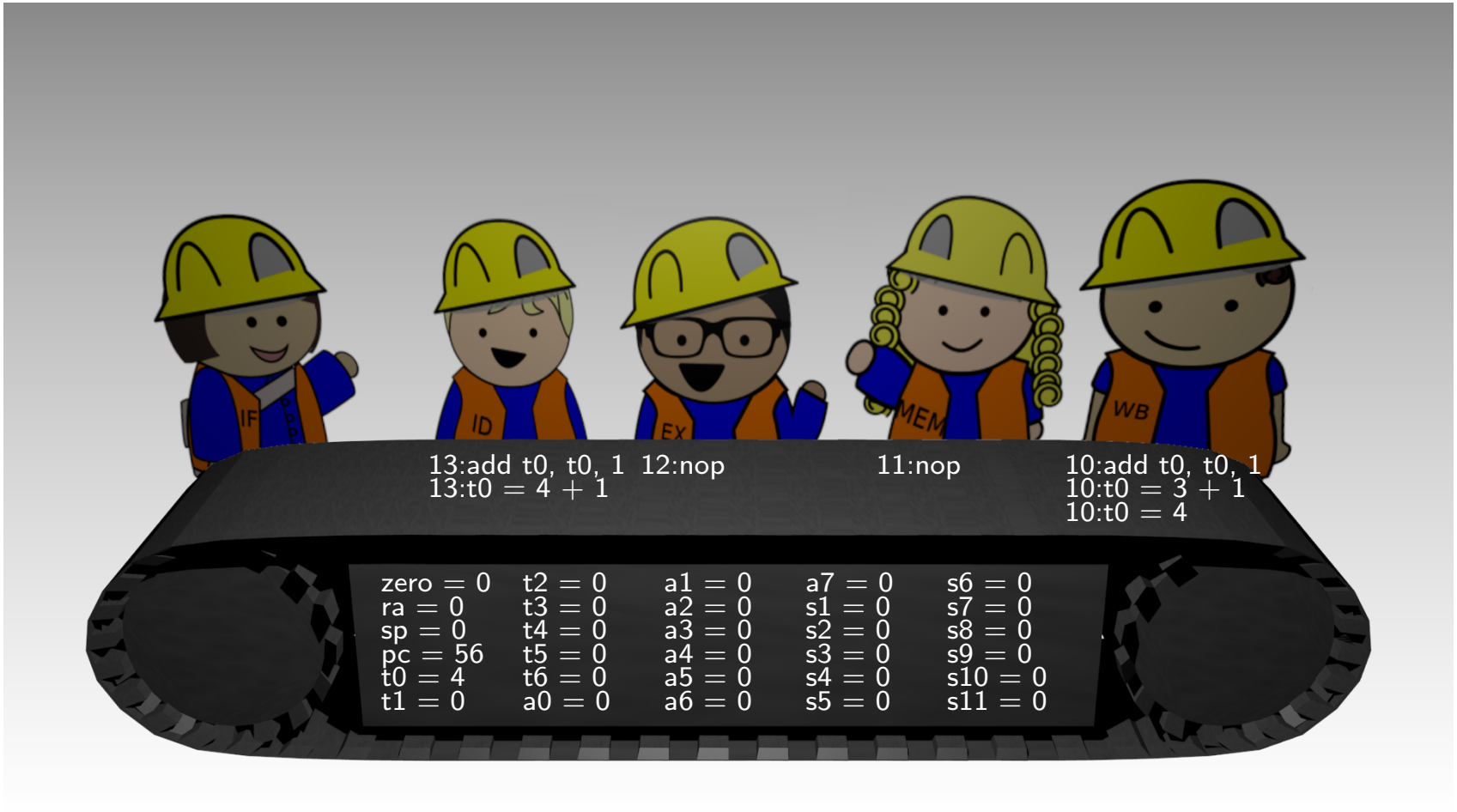
Pipeline Konfliktlösung: Takt 12



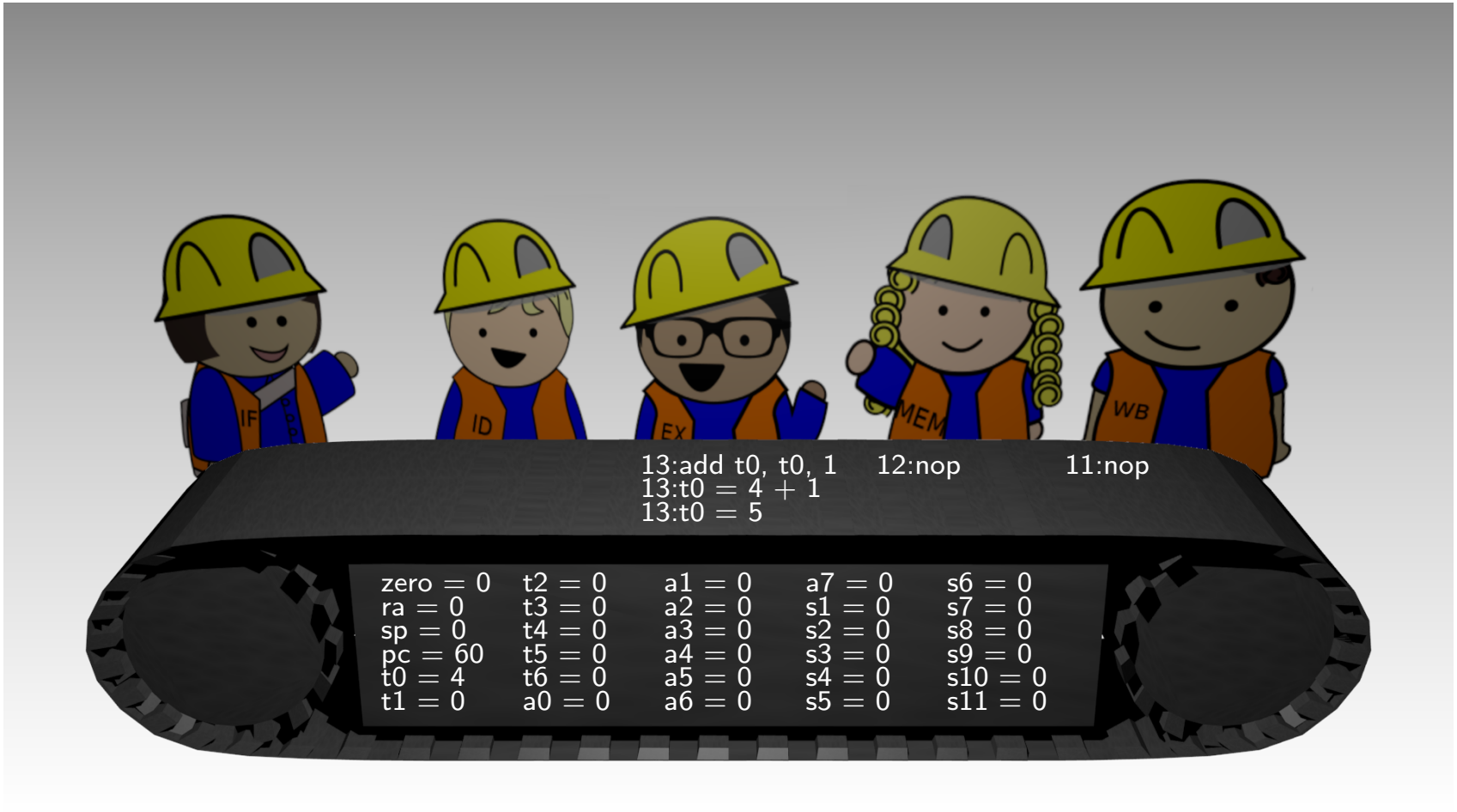
Pipeline Konfliktlösung: Takt 13



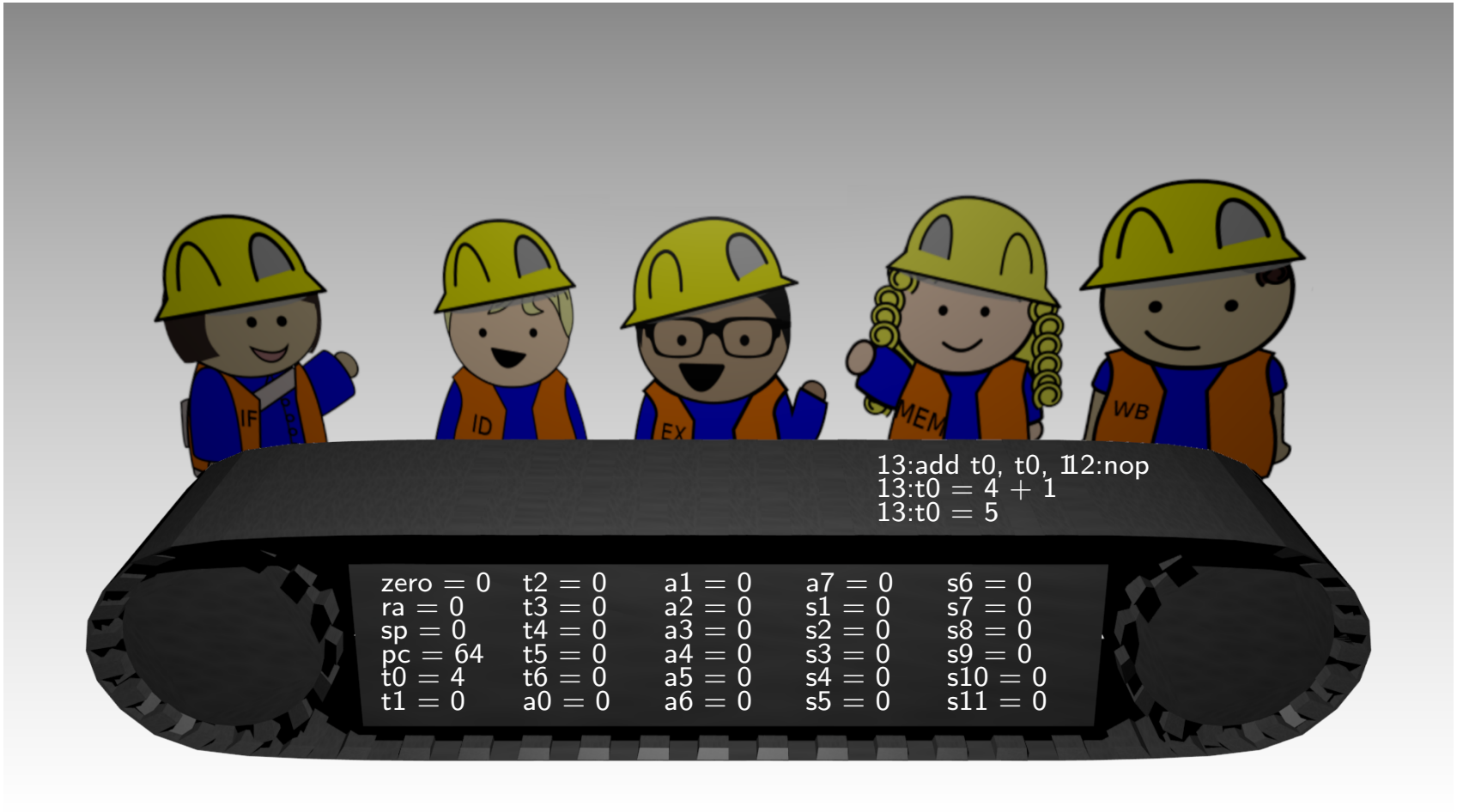
Pipeline Konfliktlösung: Takt 14



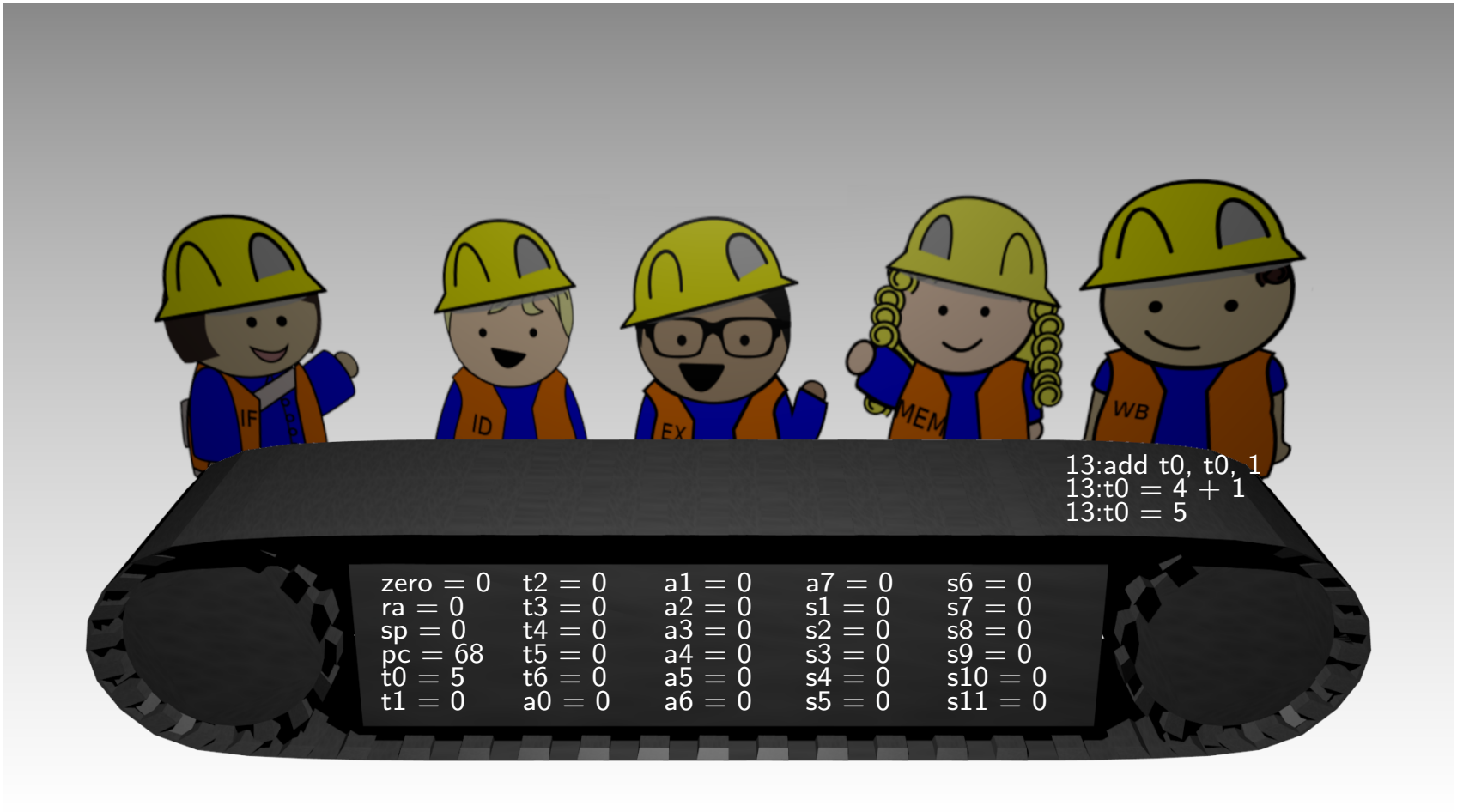
Pipeline Konfliktlösung: Takt 15



Pipeline Konfliktlösung: Takt 16



Pipeline Konfliktlösung: Takt 17



Pipeline Konfliktlösung: Takt 18