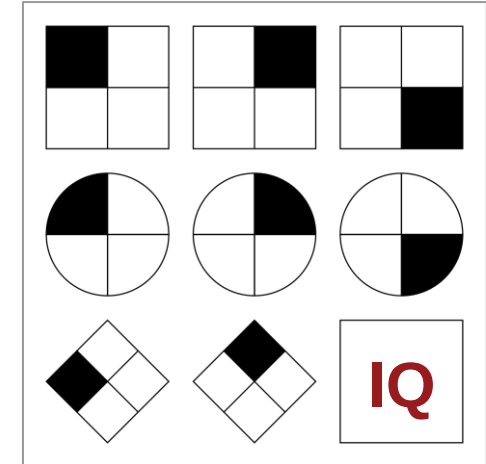
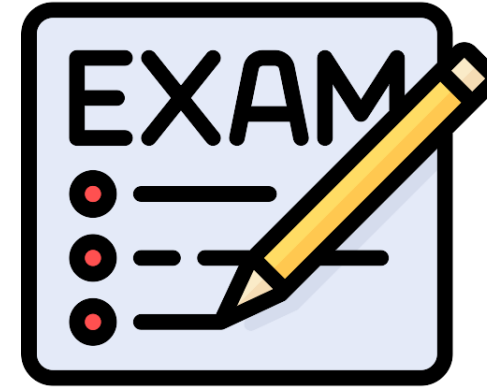




Alejandro Salado, PhD

In collaboration with N. Shadab, T. Cody, and P. Beling

Challenges to V&V Intelligence

Are **INTELLIGENT** systems
a **new** class of systems?

...for which traditional/existing SE does not work

UNIQUE capabilities

Learning to perform a **function better**

Learning to handle a **larger set of input** trajectories for an existing function

Learning a **new function**

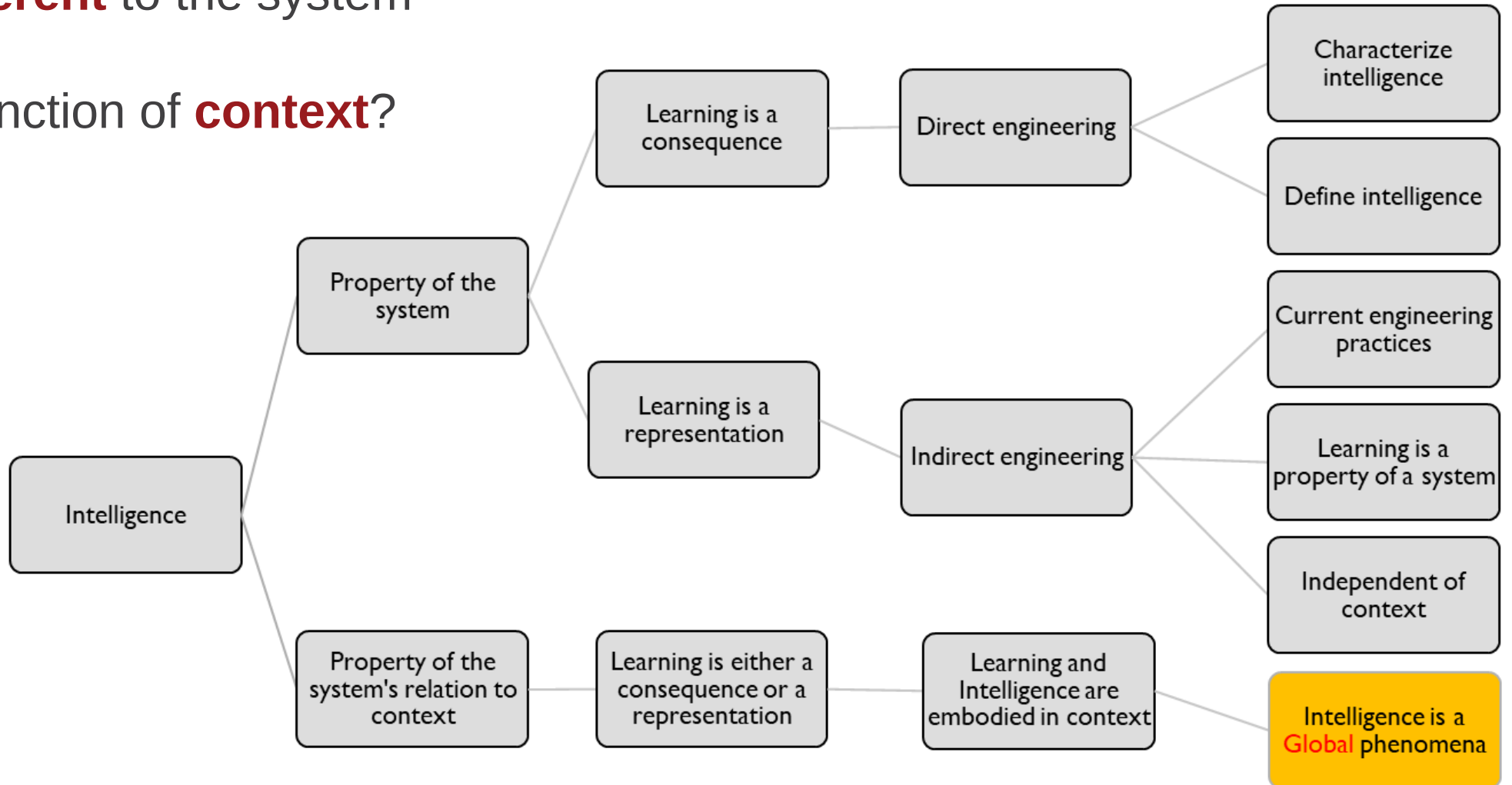
Learning to achieve an existing **outcome in a new context**

Learning to achieve an **outcome better**

Learning to achieve a **new outcome**

Deciding to pursue a **different outcome**

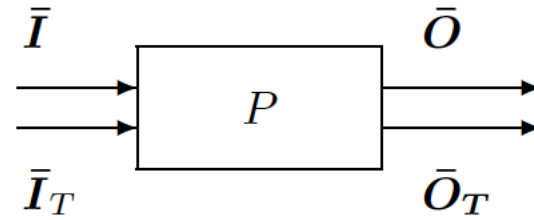
Is INTELLIGENCE
inherent to the system
 OR
 a function of **context**?



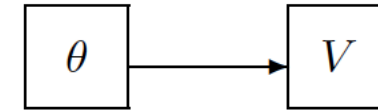
INTELLIGENT systems
are **not behavioral-preserving** entities
are highly **sensitive** to inputs

TEST VECTORS

TRADITIONAL

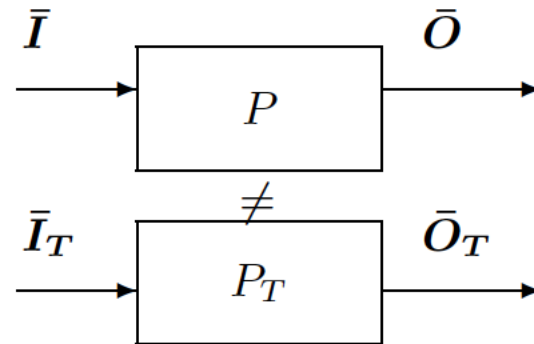


(a)

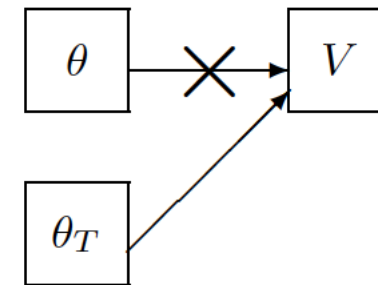


(b)

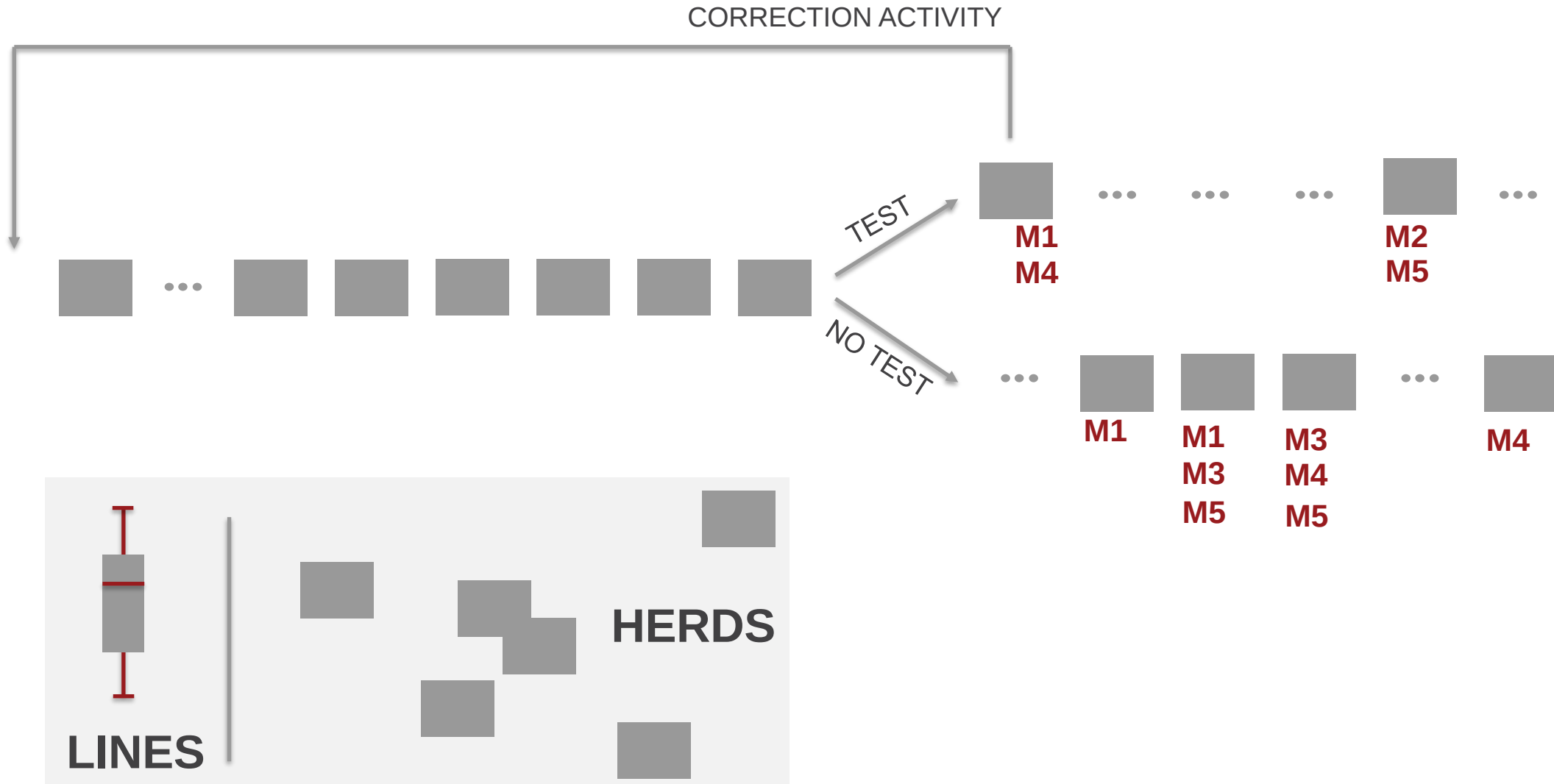
INTELLIGENT



(a)

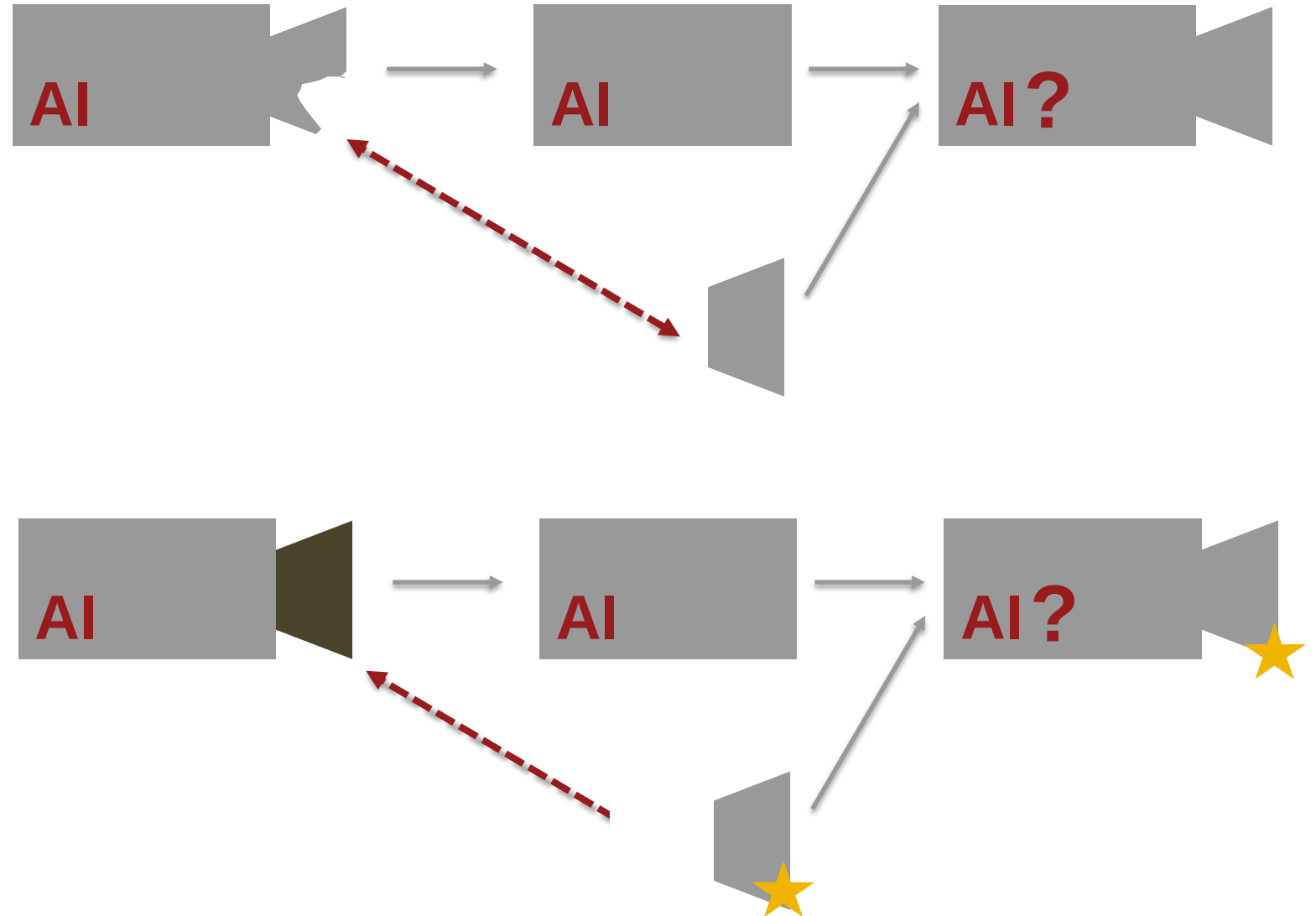


(b)





SUSTAINMENT



Are **INTELLIGENT** systems a **new** class of systems?

*...for which **traditional/existing SE does not work***

ADAPTIVE V&V

V&V **RULES** of learning *Talk to Tom McDermott!*

Characterize learning **TOLERANCE**