



AGI engineering

Subscribe



AGI: TESTING

CLASSIFICATION BY ENVIRONMENT



Mykola Rabchevskiy

Aug 18



1



Any system under development requires testing, and the degree of development success significantly depends on the adequacy of the tests. When developing an AGI, adequacy means that the test must use all the features distinguishing AGI from simpler AI versions. The analysis of the specifics of possible tests allows at the same time to introduce a partial ordering of the set of tests according to the degree of their complexity.

The complexity of the environment obviously determines the level of requirements for an intelligent control system. The most complex is the *hostile natural continual environment*, which includes objects that actively oppose the actions of the controlled system. The *natural environment* requires observing *continuous processes*, using an appropriate data representation, and predicting future *events* based on the analysis of these processes [see Nuts and bolts of the decision making]. The presence of active counterwork to the actions of the controlled system complicates the decision-making process, *extending the optimization problem to the minimax one*.

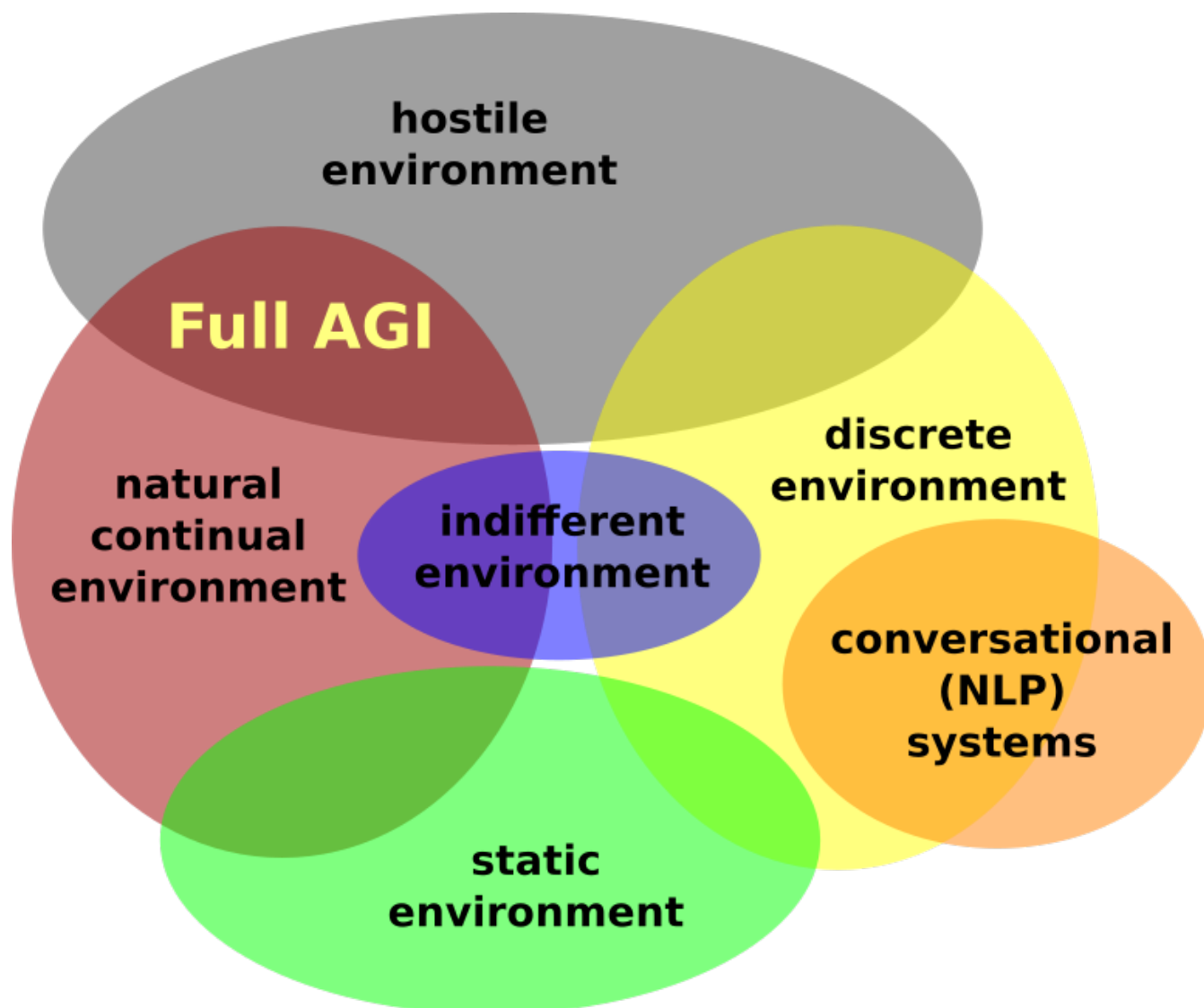
Simplification of the test environment allows not only the simplification of the AGI system modules but, in many cases, some modules can be excluded. The addition of such

© 2021 Mykola Rabchevskiy. See [privacy](#), [terms](#) and [information collection notice](#)



Publish on Substack

AGI engineering is on [Substack](#) – the place for independent writing



Hostile environment

A dynamic environment, the objects of which *purposefully impede* the activities of the controlled object.

Examples: air defense system; computer games.

Natural continual environment

It requires monitoring many *continuous processes*, predicting *events* in the environment according to its *dynamic model*, predicting the consequences of the *interaction of the controlled object with the environment*. The success of actions *depends on the speed of decision-making*.

Example: delivery robot on a crowded street.

Discrete environment

The environment is *discrete*; there are *no continuous processes*, no continual process implementation/analysis is required. Most test environments fall into this category.

Example: computer games.

Static environment

The *environment is unchanged* (except for the movement of the controlled object itself); *forecasting the situation in the environment is not required*; the speed of learning the environment does not affect the success of the actions.

Example: Mouse in a maze.

Indifferent environment

AGI system actions do not affect the situation in the environment; the controlled object is not one of the objects of the environment rather an *external observer*. The degree of success of actions depends primarily on the *quality of the forecast of the situation in the environment*.

Example: Exchange trading, portfolio management.

Conversational systems

Most of the systems of this kind known to us *do not correspond to the definition of the AGI system* we use: they are not permanently active, unable to learn permanently, have no motivation, decision-making is not based on an explicit criterion for comparing options. Where a conversational system fits the AGI definition adopted here, it falls into a *discrete environment*.



Subscribe

← Previous

Next →



Write a comment...

Ready for more?

Subscribe