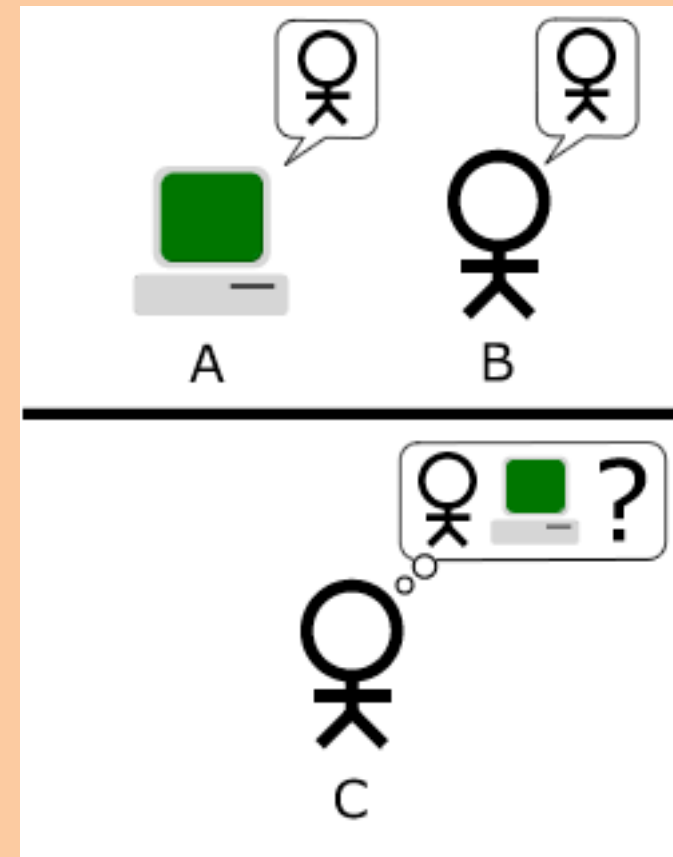


## 1 - Background:



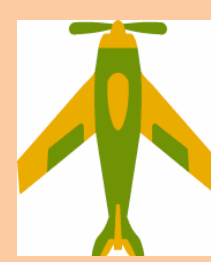
Turing's Test: A human interrogator engages a subject in a typewritten natural language conversation. The subject may be either a computer or a human, and is shielded from the interrogator. The interrogator must identify whether the subject is human or computer.

The game was proposed by Alan Turing as a proxy for determining whether a machine could think. Because directly testing for intelligence would be a difficult task, Turing proposed that if

the machine was otherwise indiscernible from a human based on a typewritten conversation, then the machine could be considered intelligent. This test continues to be a topic of debate, particularly in the A.I. and machine learning fields. Despite significant controversy about what passing the test might really mean, this test remains a significant milestone in ongoing Artificial Intelligence research. No computer has passed it yet.

## 2 – The Test:

UAV Turing Test: An experienced pilot, acting in the capacity of the interrogator, would be able to generate scenarios ranging from simple takeoff and landing, through complex multi-aircraft situations. The subject, either computer or human, would react to the scenario in the most appropriate way based on FAA rules and experience. The interrogator must identify whether the subject is human or computer.



We want to fly in unrestricted national airspace. Civilian applications for UAVs, like over-flights of natural disasters or gathering sensor information for large geographic areas, present an unprecedented opportunity to reduce cost and increase responsiveness. Such endeavors require a new level of autonomy from aircraft. I propose this new level of autonomy can be validated through the use of a more restrictive Turing Test.



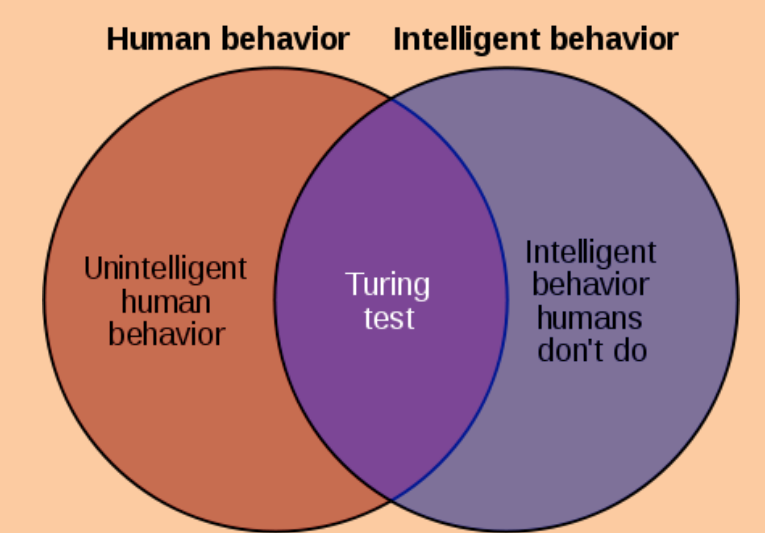
## 3 - Criticisms:

The Blockhead Argument: (Block, 1981) Information retrieval-based implementations suffer a penalty as the topic-scope and time length become unrestricted.

The Chinese Room: (Searle, 1980) Adherence to a set of rules (a program) does not confer intelligence.

Associative Priming/Subcognitive Rating: (French, 1990, 2000) Cognitive association of word pairs (bread and butter) would result in discernable human advantage over machines, as would common sense rating questions like rating “dry leaves as hiding places.”

***For UAVs: the topic scope is already limited, we are primarily seeking to emulate intelligence, and cognitive association is unnecessary.***



## 4 – Benefits / Conclusion:

- ❑ Would be a useful tool in establishing a bar to drive development of A.I. to support flight in the national air space.
- ❑ Required machine understanding is strictly limited when compared to broad Turing Test, opening the possibility for valid near-term solutions.
- ❑ Can be used to establish both safety of flight and standard operating procedure for flight in the national airspace.
- ❑ Many of the criticisms of the unrestricted Turing Test do not apply.