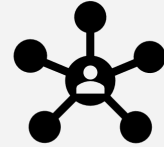
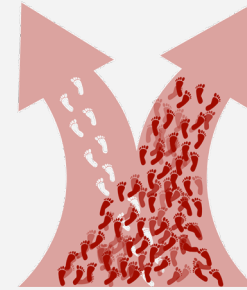


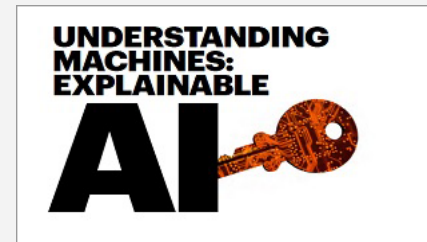
THE SYSTEM AS A SOCIAL ENTITY



- **Delineate scope of responsibility** – not just functions, also responsibilities – e.g., who is responsible to provide an alternative means of transportation if something goes wrong?
- **Mimic Others** – e.g., - if all cars ahead start switching lanes ...
 - Caveat – crowd behavior may be misleading
- **Ask for Help and Support** –
 - Contact humans or other machines for help
- **Enable Passive Acceptance of Help** –
 - Give means to bypass, override, terminate actions by others
- **Communicate plans and intentions** – e.g., broadcast intended route, announce next step
- **Negotiate** – many constraints are bendable – e.g., get permission to bypass in a queue



If all else fails,



“Siri what's 0÷0”
tap to edit

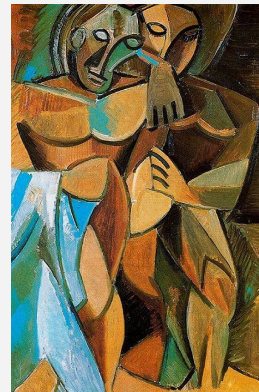
Imagine that you have 0 cookies and you split them evenly among 0 friends. How many cookies does each person get? See, it doesn't make sense. And Cookie Monster is sad that there are no cookies. And you are sad that you have no friends.

$0 \div 0 = \text{indeterminate}$

Towards a Science of the Unexpected

- A more concise articulation of the principles
 - Accompanied by systematic engineering methodologies
- This may benefit from a variety of areas:
domain-specific ontologies, simulation, testing and verification tools to determine completeness and non ambiguity
- For example, adhering the the area of ontologies, we can formally define the Unexpected as either:
 - An event / state of some thing in the world that the system is not able to interpret, or
 - An event / state of the system itself that has no clear interpretation in the world
- Using an ontological taxonomy we could systematically seeks for potential unexpected states/events in a system
- Other theories such as the one of classification could help analyzing (detect and react) to situations that do not conform to any known class
- **Can we utilize existing technologies and AI to build system that possess the previously listed abilities?**
- **How can we measure, quantitatively, the ability of a system to cope with the unexpected?**

What do you see?



Friendship, 1908
by Pablo Picasso

THANK YOU

Q&A

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