Group Beliefs

Notes for self, March 20, 2018

Group Beliefs

1. Literally, a group belief, e.g., a group report.
2. Deferral to group of experts who don't all agree
3. Deferral to peers

The Puzzle

- Majority opinions aren't closed under logical entailment.
- Indeed, can have p, q and $\neg(p \wedge q)$.
- If you have three propositions, you can have unanimity of negated conjunction, and majority for each conjunct.

Solution One - Talk it Out

- In reality, you should always talk through these puzzles.
- Why this is so is a bit interesting, and maybe will come back to.

Solution Two - Set an Agenda

- Fix some things to decide upon, and take questions to be settled once they are entailed by things that are decided.
- But then the order of operations will matter.
- And very big question - should the order be set externally or internally.
- An external setting is where we decide before seeing the questions what we'll do
- An internal setting is where we take the opinions to determine the order
- So settle the unanimous ones first is a kind of internal setting.

How we do this in Practice

- Really totally varies.
- Not even clear how we should do it.
- Worth thinking through some examples

Experts

- In practice, we don't want to defer equally to each person.
- We want to defer to the physics experts on physics, the hockey experts on hockey, etc.
- The problem is, this turns out to be hard when there are propositions about both.
- This will relate to another problem, but here's the basic idea
- We have to solve various problems about conjunction.
- If they agree the problems are independent, then easy.
- If they agree the problems are dependent, it is sort of like a peer question.
- Imagine one of them thinks the questions are linked, the other does not.
- How do we determine what to do?

Probability

- Linear averaging solves a lot of problems
- The linear average of a bunch of probability functions is a probability function.
- Hooray, but wait a minute
- Problem about experts
- Problem about independence

Expert Problem

Prop	A	B
p&q	0	0
$p\&_{q}$	0.6	0.2
${}_{p}\&q$	0.2	0.6
${}_{p\&}q$	0.2	0.2

- If you settle the unanimous questions first, you end up with a weird view on p, q
- Make A expert on p, B expert on q; both think the prop they are expert on is more likely than not, but hard to see rule that gets you to that result.

Independence Problem

We know it. Talk through basics and get to GroupThink