Logical Anthropology, Polyadic Pragmatism, and Big Data Analytics

Don Peterson. IEA-USP.
EBICC XII Conference. UNICAMP.
23.09.2019.

Contents

§1. Logical Anthropology
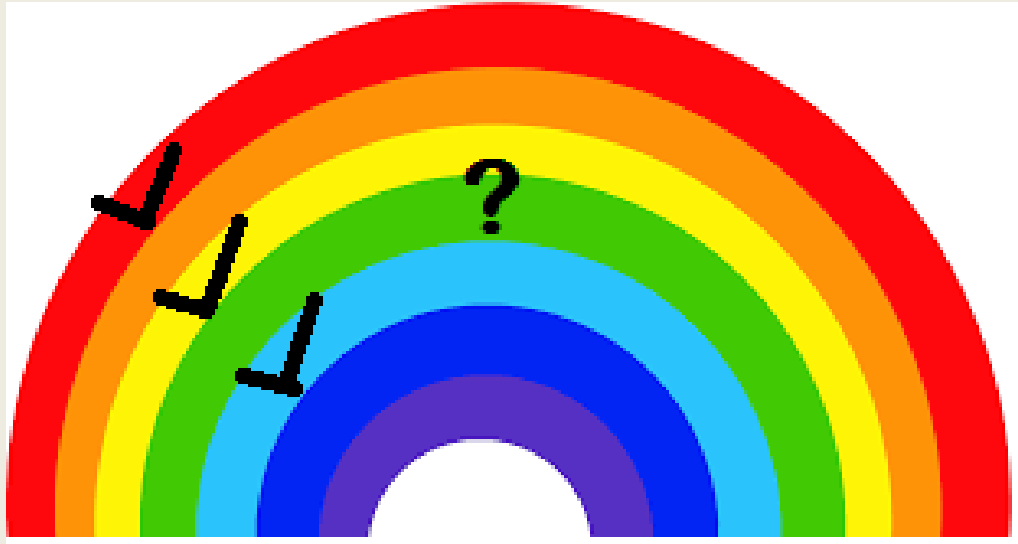**§2. Polyadic Pragmatism**
§3. Big Data Analytics
§4. Conclusion

point of talk:

PP ⇔ CGSP

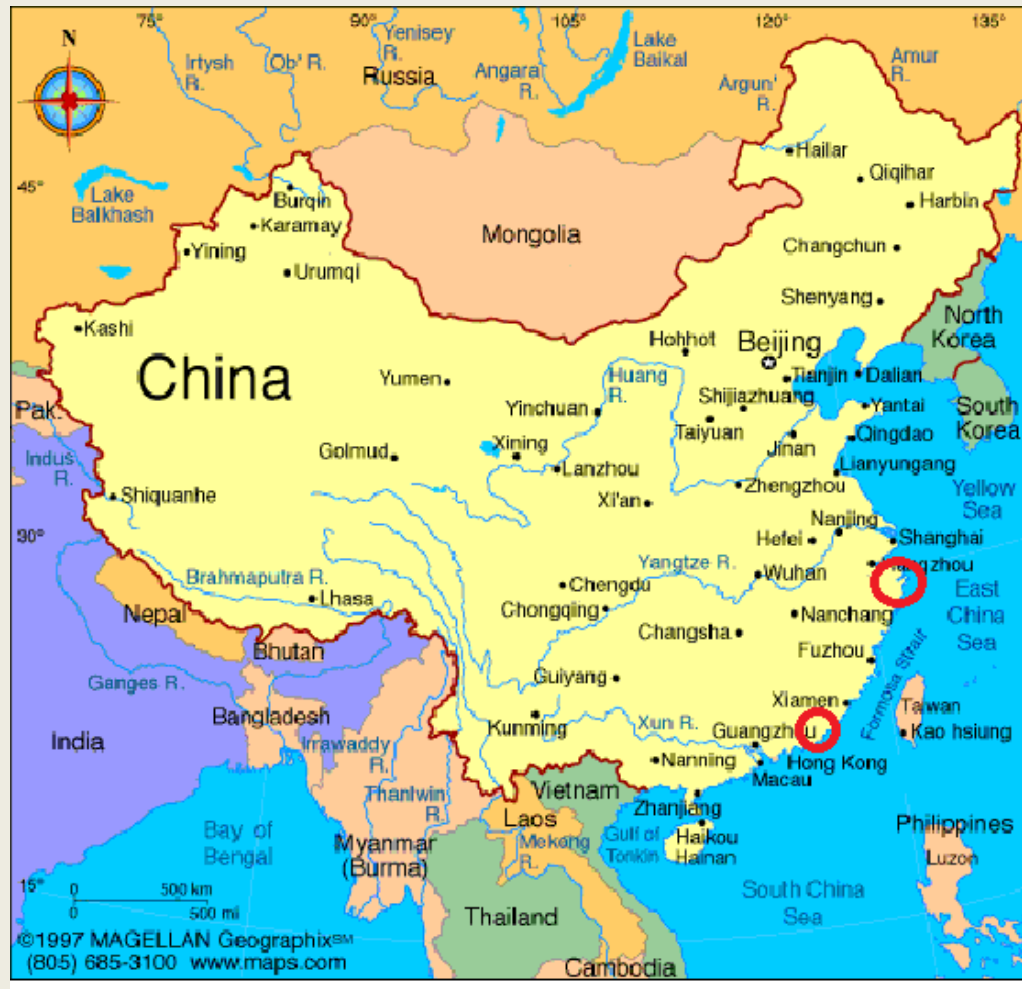**(there is a relationship betweeen §2 and §3)**

§1. Logical Anthropology

o   human reasoning is a rainbow
o   logic has *mainly* captured three colours: deduction, induction, and abduction
o   logical anthropology may identify others
o   the technique is to monitor success of interaction as a criterion of Verstehen.

practical success indicates Verstehen

§1.1 location

two universities, teaching 100% Chinese students

§2. Polyadic Pragmatism

o   I needed to think from their point-of-view, despite a big culture gap
o   this point-of-view includes polyadic pragmatism (PP)
o   PP = adjustment of action to multiple contexts and goals.

Verstehen indicates point-of-view

§2.1 examples

In PP we equilibriate **E** actions **A**, goals **G** and contexts **C**, and evaluate optimality **O** for each set of variables **S**. Thus E(A, G, C) = O, where the variables A, G, and C may have alternative and also compound values, and where O evaluates A´s consequences for G in C.

One factor is the agility **α** with which a system can process alternative sets of variables S. This requires us to generate **Γ** alternative candidates for S, and then select **Σ** the optimal one **Ω**. Here are some examples from China.

Choice of Restaurant. Some goals here may be good food, preferred food, economy, looking posh, proximity, guests´preferences. E.g. there is a market for exceptional food in a very plain environment.

Driving. We might decide to drive on the wrong side of the road or on the pavement: if the context makes it possible, if it does no harm, if it speeds up the journey, if the police are not looking, if it is common practice in the location, etc.

Tea. We might drink tea from a cheap plastic flask: if we do not want to look posh, if a Yixing clay (宜兴) teapot is inconvenient or too expensive, if we do not believe the clay makes a difference, if we are on the move, or if we do not want to look conspicuous.

Shops. When running a shop, we might keep it open for 16 hours per day for custom, and hence conduct family life there, including letting young and old people sleep there during the day, thus allowing multiple agendas to coexist.

Waiters. As waiters in a restaurant we might catnap at table if there are no customers, thus being available for work + resting.
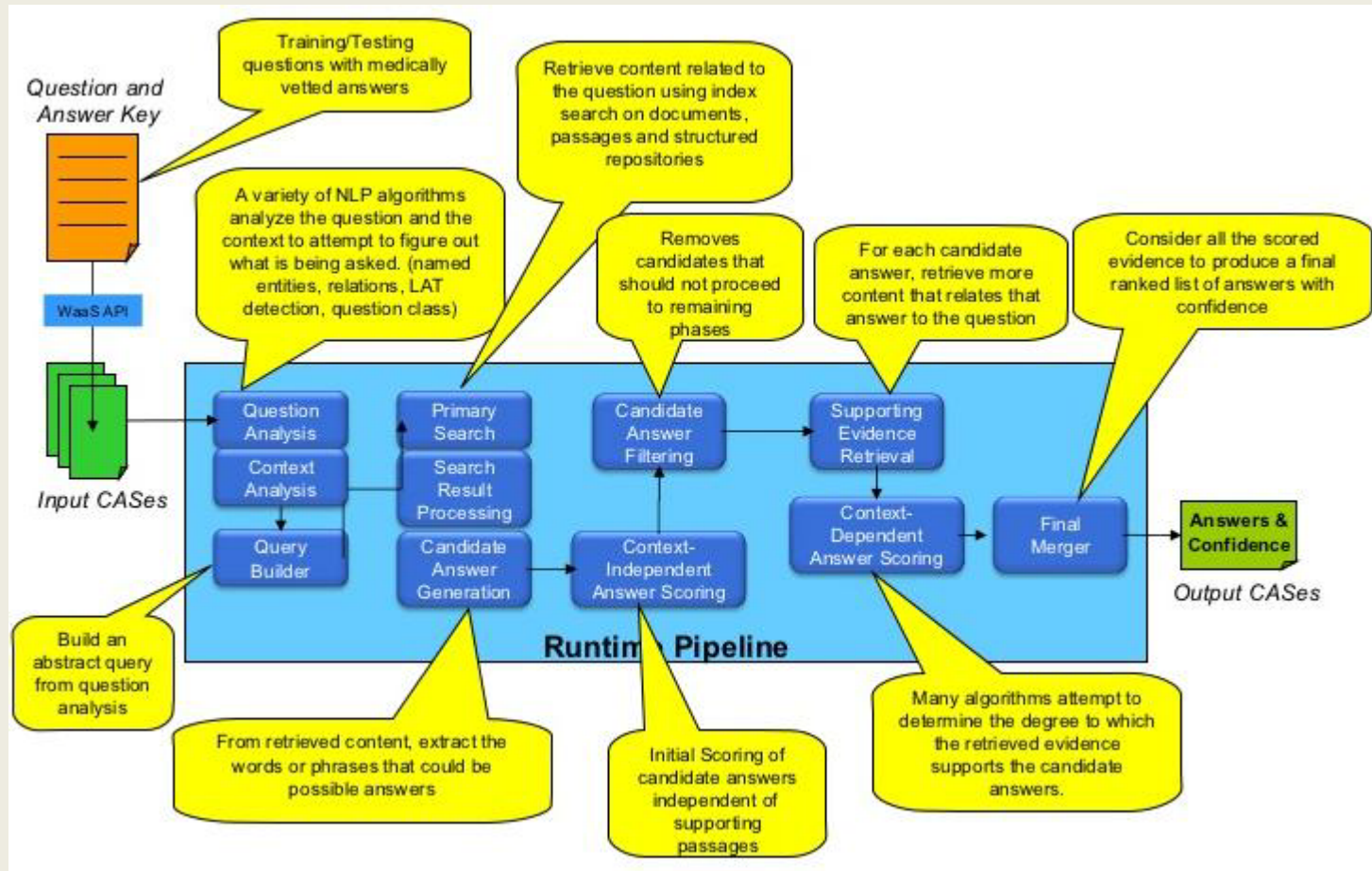
Hairdressers. As hairdressers in a salon, we might play badminton on the pavement when there are no customers, thus providing availability for work + recreation.
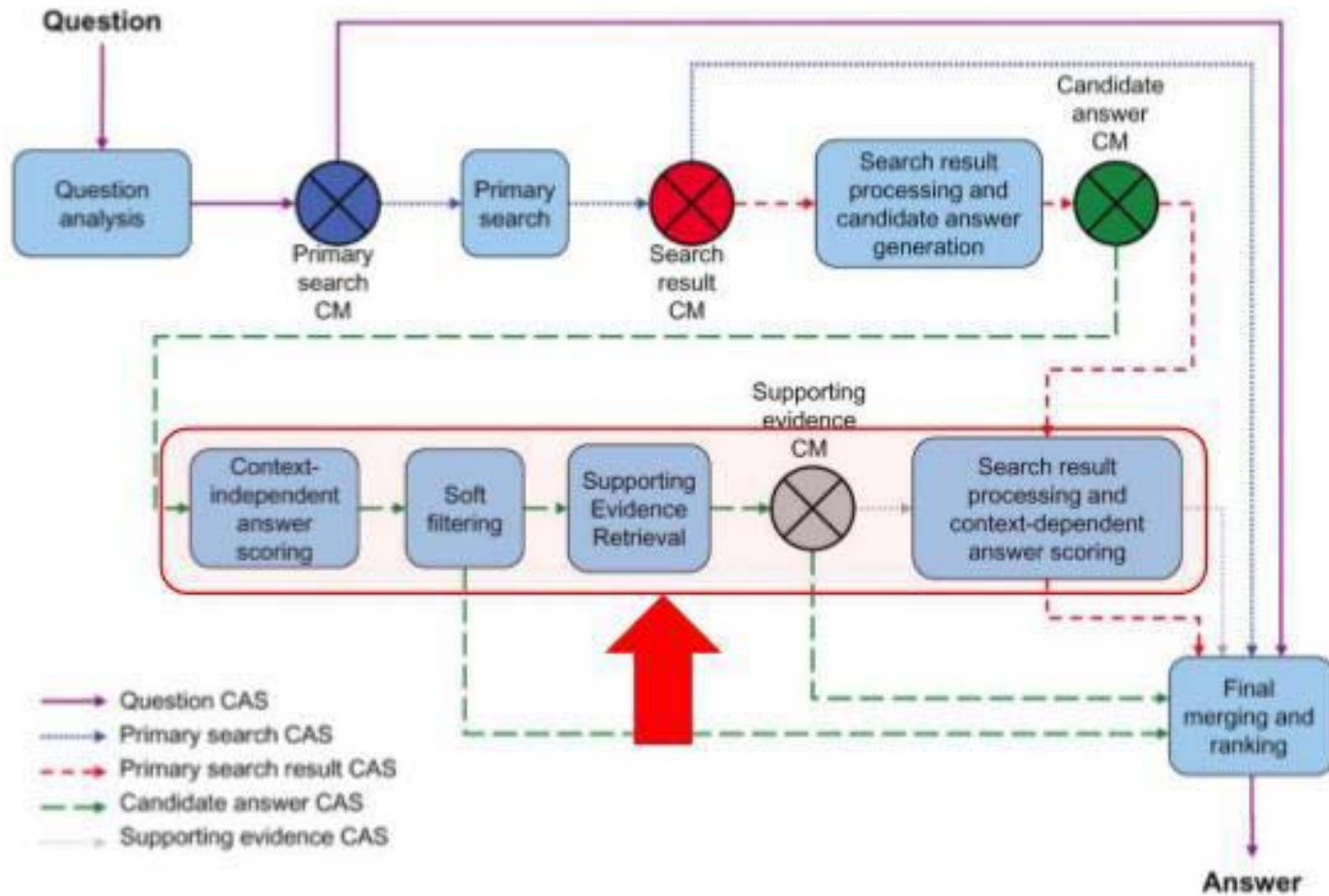
§3. Big Data Analytics
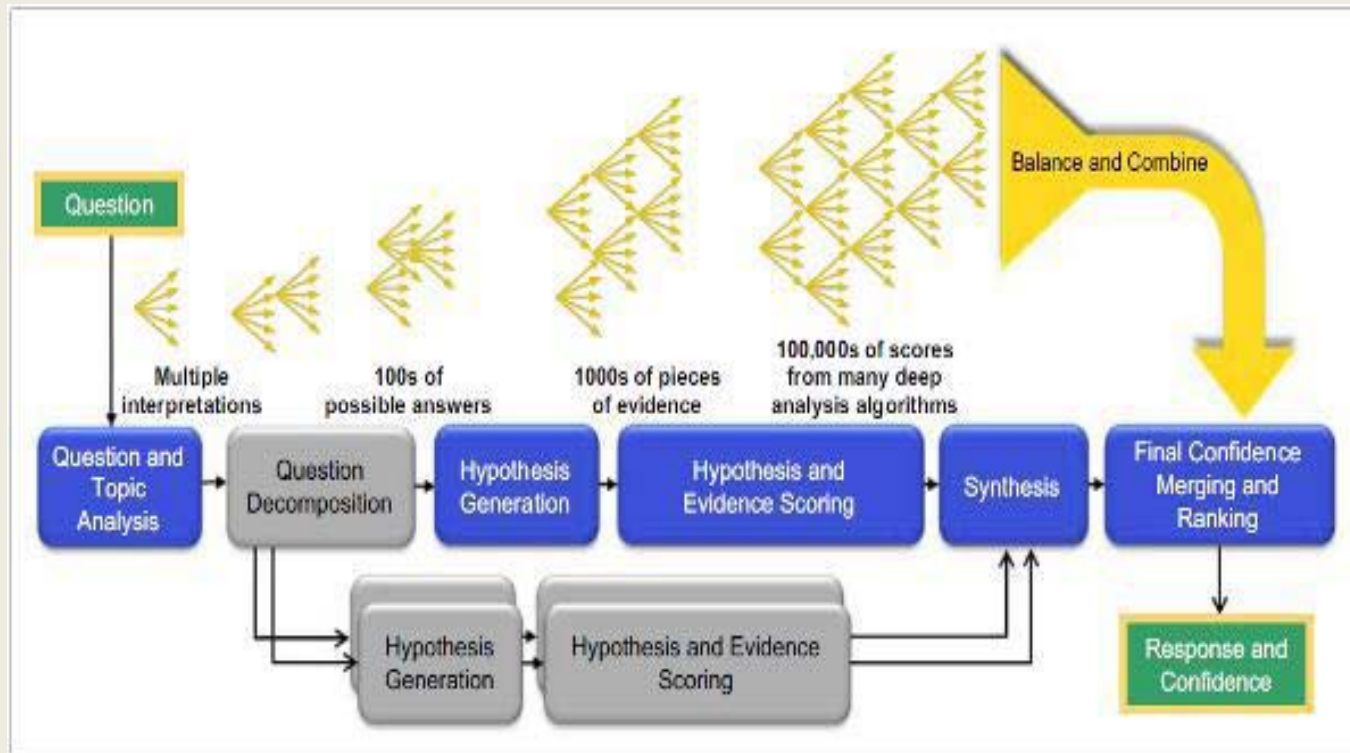
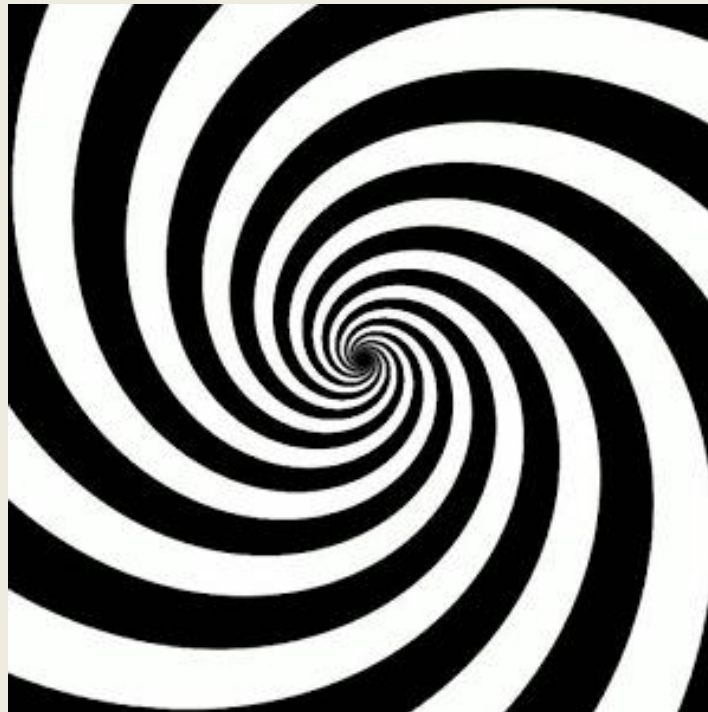IBM Watson uses a candidate-generation-selection-pipeline (CGSP) to produce hypotheses then select among them.

§3.1 CGSP

§3.2 scoring and ranking

§4. Conclusion

§4.1 operational models & isomorphism

Polyadic Pragmatism

1. generate a provisional action: D
2. generate candidate enactment-frames: F for F(D)
3. evaluate these re. contexts C and goals G: Eval(<u>F</u>(D), G, C) = O (optimality)
4. select the best F with highest O: F*
5. enact F*(D).

Watson CGSP

1. generate a question
2. generate candidate answers
3. evaluate these (selection & ranking) in parallel
4. select the best one
5. deliver this answer.

§ 4.2 Utility

The suggested relationship may be useful in three ways:

1. It indicates a way in which CGSP systems may support PP (e.g. in decision making in an increasingly volatile and connected world)

2. It indicates a way of understanding how and whether CGSP systems "think like a brain"

3. It may help to model and understand PP as a contribution to cognitive science.

PP ⇔ CGSP

[end]