Pre-reading 12

1. What is "the logical problem of language acquisition"?

It's surprising that children are able to learn a complex language from noisy and unhelpful data.

This is also known as The Argument from the Poverty of the Stimulus - children have to learn language from linguistic data which is deficient in various ways. Pullum & Scholz (2002) provide a nice summary (and demolition of parts of) this kind of argument, the classic ingredients of the logical problem of language acquisition include:
1. Children are not specifically or directly rewarded for their advances in language learning.
2. Children's data-exposure histories are finite, but they acquire an ability to produce or understand an infinite number of sentences.
3. Children's data-exposure histories are highly diverse, yet language acquisition is universal.
4. Children's data-exposure histories are incomplete in that there are many sentences they never hear, yet can produce and understand.
5. Children's data-exposure histories are solely positive—they are never given details of what is ungrammatical.
6. Children's data exposure histories include numerous errors, such as slips of the tongue and false starts.

2. What is the difference between N-induction and C-induction? Which is easier?

N-induction involves learning about the natural world. C-induction involves learning about the social world, or learning about the cultural world, or learning to coordinate with others (they are never actually super-clear about what the C stands for - I think it makes most sense to take it as standing for Culture). C-induction is easier, because the systems you learn through C-induction have undergone iterated learning, and therefore should be well-adapted to your biases, as we have seen in the simulation models you have been working with.

3. What does the N- vs C-induction distinction have to do with the logical problem of language acquisition?

The logical problem of language acquisition is framed as an N-induction problem - there is this really complicated system out there in the world, you have to figure out how it works, and what's worse the data you get is so bad that the learning process seems to require you to make all kinds of inductive leaps in the absence of good evidence. Miraculously, the inductive leaps that children make always turn out to be the right ones. Viewing language acquisition as a process of C-induction flips this on its head: you are trying to learn a system which has been repeatedly learnt and transmitted over many many generations, and so will be well-adapted to the biases of human language learners, whatever they are. This means that acquisition will in fact be easy, and the inductive leaps you make will be the right ones, because they will be the same inductive leaps that previous generations have made, and will therefore actually be the way the language works.

References

Pullum, G. K., & Scholz, B. C. (2002). Empirical assessment of stimulus poverty arguments. *The Linguistic Review, 19,* 9-50.