

Rationalism & Innate Knowledge: Leibniz & Chomsky

Gottfried Wilhelm von Leibniz (1646-1716) was the paradigm of a polymath. In addition to being a philosopher, he was a fine mathematician, scientist, lawyer, diplomat, engineer and historian. Leibniz mathematical work was not without controversy and he became involved in an unhappy controversy with Sir Isaac Newton – a controversy that became the source of considerable bitterness for Leibniz. Both were working on calculus at the time and it was a matter of dispute (and still is) about who was the author/discoverer of it. Newton had plenty of friends who defended his claim that he was its author; Leibniz had far fewer friends and had to plead his own case. He did this anonymously at first but it soon became (embarrassingly) apparent that he was the author of his own defence. The mathematical notation that is now used however, is that developed by Leibniz and not Newton.

Leibniz Block of Marble

Leibniz opposes Locke's view that the mind at birth is a tabula rasa (blank slate) and the thought that everything marked on it comes from sense experience. He aligns himself (somewhat) with Plato's doctrine of recollective knowledge which I talked about last week. *"Mythical though it is, it is not incompatible, in my part at least, with bare reason..."* He continues by asserting that the soul (or mind) contains certain innate principles that are hidden in us but *"caused to appear by the contact of the sense, like sparks which shock of the flint strikes from the steel"* (Leibniz, *New Essays on the Human Understanding*). Leibniz believes that these principles are divine and eternal. One such principle is reason.

The success of certain experiments in psychology is enough for some to believe that reason is an innate principle (for how would we know how to set up an experiment otherwise?) Leibniz distinguishes between sequences of ideas and reason. Sequences of ideas are formed through induction – e.g. "because I have been fed this morning and for the last several years, I will be fed tomorrow."

The innate principle of reason makes you look for *why* you believe you will be fed tomorrow. What is the reason something happens? *"...reason alone is capable of setting up rules which are certain, and of supplying what is lacking to those which are not certain...This provides the means of foreseeing the event, without its being necessary to experience the sensible connections between images...[this is what distinguishes] man from the brutes [animals]"* (ibid.)

Leibniz conceives of the mind as a block of veined marble. He believes that the ideas 'being' 'unity' 'substance'

'duration' 'change' 'activity' 'perception' (among others) are innate – there is some similarity to Kant in this respect; we will explore how in a couple of weeks. The veins in the marble correspond with innate ideas in the mind.

"I have taken as an illustration a block of veined marble rather than a [tabula rasa]. For if the soul were like a [tabula rasa], truths would be in us in the same way as the figure of Hercules is in a block of marble, when the marble is completely indifferent to whether it receives this or some other figure. But if there were veins in the stone which marked out the figure of Hercules rather than other figures, this stone would be more determined thereto, and Hercules would be as it were in some manner innate in it, although labour would be needed to uncover those veins...It is in this way that ideas and truths are innate in us, like natural inclinations and dispositions, natural habits and potentialities" (ibid.)

Noam Chomsky's Innate Grammar Thesis

Chomsky's linguistics is predicated on a rationalist theory of mind. It opposes the empiricist tradition developed by John Locke 300 years before - a tradition that claimed the human mind was a blank slate at birth.

Like Leibniz, Chomsky believed that the operations of the mind are guided and constrained by innate structures. In Chomsky's case, these are syntactic structures that are common to different languages.

At a fundamental level, Chomsky believes that all languages share the same basic structure (think here of Leibniz's block of marble). It is, as it were, hard-wired into our brains as opposed to something that is learned from experience.

Chomsky's support for this position rests on several arguments supported by psychological research – the most well known of these being the 'productivity argument' and the 'poverty of stimulus' argument'.

Broadly speaking, psychologists have allegedly demonstrated that grammatical ability develops very quickly in children who are two or three years old – far faster than they should given the limited amount of vocabulary to which they have been exposed. This innate capacity (our hard-wiring) is argued by some (although not by Chomsky) to be genetically inherited and is, presumably, as such, subject to evolution.

More generally, Chomsky believed that such innate knowledge generally prevents us from being wayward and, accordingly, allows us the consistency to conceive of a definite *human* nature.

In addition to this positive thesis, Chomsky also attacked the philosophical position of behaviourism. Behaviourism rejects the existence of an inner mind altogether. The behaviourist considers mental states to be non-existent and merely a shorthand way of describing our behavioural qualities and propensities in certain ways. Thus a person is only actually in pain when they exhibit the outward signs such as screaming, or writhing around on the floor etc, or they are only angry when they shout and stamp their feet. Put another way: our psychological adjectives such as ‘pain’ and ‘seeing’ are applied according to behavioural criteria; there is nothing other than such criteria to go on.

Chomsky argued that the behaviourist position that we passively respond to physical and verbal stimuli cannot account for our ability to grasp language so quickly. This also suggests that social conditioning only plays a limited role in our development – nature (as opposed to nurture) does the rest.

“The child who learns a language has in some sense constructed the grammar for himself on the basis of observations of sentences and non-sentences (i.e. corrections by the verbal community). Study of the actual observed ability of a speaker to distinguish sentences from non-sentences, detect ambiguities, etc., apparently forces us to the conclusion that this grammar is of an extremely complex and abstract character, and that the young child has succeeded in carrying out what from the formal point of view, at least, seems to be a remarkable type of theory construction. Furthermore, this task is accomplished in an astonishingly short time, to a large extent independently of intelligence, and in a comparable way by all children. Any theory of learning must cope with these facts. ... The fact that all normal children acquire essential comparable grammars of great complexity with remarkable rapidity suggests that human beings are somehow specially designed to do this, with data-handling or ‘hypothesis-formulating’ ability of unknown character and complexity.” Chomsky, Review of B.F. Skinner’s “Verbal Behaviour”.

“The structure of particular languages may very well be largely determined by factors over which the individual has no conscious control ... it seems reasonable to suppose that a child cannot help constructing a particular sort of transformational grammar to account for the data present to him ... Thus it may well be that the general features of language structure reflect, no so much the course of one’s experience, but rather the general character of one’s capacity to acquire knowledge – in the traditional sense, one’s innate ideas and innate principles.” Chomsky, Aspects of the Theory of Syntax (1965), p.59

Some problems for Chomsky on innate knowledge:

- Some of the grammatical principles that Chomsky argues must be known innately are so abstract and technical that very few language users are consciously aware of them. Can we “know” something innately even though we are never consciously aware of it?
- Chomsky often talks as though our innate grasp of language is a kind of innate ability to learn language from those around us. Can an innate ability really count as “knowledge”?

More General Problems for the Innate Knowledge Thesis

- Theories of innate knowledge have to deal with the apparent absence of any knowledge about the world shown by infants.
- If the theory of innate knowledge defines it as knowledge that “comes from within us”, as Leibniz suggests, it is reasonable to ask whether some experience of the world is needed to draw this knowledge out of us; in which case surely this knowledge depends on experience after all.
- Are there really any principles that all humans agree on? For example, some philosophers have argued that we should follow slightly different logical laws, and mathematicians have developed different “non-Euclidian” geometry that does not follow the “standard” rules.
- If we really have innate knowledge, how did it get there? At one time God was a popular answer to this question; now it seems that evolution may offer an alternative explanation.

Next week we will look at empiricist theories of knowledge before looking at Kant the following week. After that, we will move away from texts in epistemology and look at some famous work in philosophy of mind, philosophy of psychology and moral philosophy.