

Broca characterized Tan's impairment as a deficit in articulate language and suggested that such a faculty may be localized in the region in which the lesion originated. Thus, when using lesion patients to localize function, what is localized depends heavily on how the behavioral deficit is characterized. Beyond descriptions of behavioral deficits, any behavioral description likely reflects the researcher's theoretical framework (e.g. the interpretation of a Skinnerian behaviorist versus a cognitive psychologist). Hence, the theory-ladenness of observation enters into neuroscience research even before any work with the brain begins (e.g. recording, staining, stimulating, lesioning).

I was a bit confused on the "artifact problem" and I am not quite sure exactly what it is referring to. From my knowledge now it seems like the "artifact problem" is seeing if the machines or techniques used to look at the brain are accurate in what they claim to do. So is the artifact problem just checking to see if the technique used is accurate by comparing it to other techniques and what things they have in common and what is different? This was not totally clear.

Until a true method of analyzing the brain is discovered, is any data we accumulate completely true? After reading through chapter 4 of PNR, it seems to me that any studies we do of the brain at this point in time are rather futile. But there isn't anything else to do but try and keep looking for new mechanisms and methods for studying the human brain.

Since neuroimaging techniques are an oasis of data about the functioning of the human brain, then using fMRI, PET and the like is bound to influence the questions that can be addressed and answered in a scientific way. These techniques are very useful tools of the trade but I wonder how they influence the nature of discovery and ideas about the living human brain. If research being put out is a product of its environment then perhaps these technologies will end up biasing the entire discipline towards anatomical differentiation because they are convenient and away from interactive components of the brain functioning difficult to study.

I found a notion in the chapter regarding epistemic issues of evidence very interesting, that imaging evidence is only "as good as the assumption of decomposition of processing components on which it relies." I thought this was a very good reflection of how evidence, or rather what we take from the data, depends on our interpretation of the particular evidence itself as well as the larger story of explanation which we fit it into. I always thought of the "theory-ladenness" of evidence having to do with a scientist's particular emphasis of certain data, however all data is understood in a particular way, according to a scientist's theories and beliefs, and this makes the problem of "theory-ladenness" much more pervasive in my mind.

In many cases there seems to be no independent standard to interpret results by or choose a theoretical framework, so I am wondering if there is a logical system scientists use to choose one framework rather than another. Furthermore, it says that failure to find a framework leads scientists to think that the results are artifacts, but couldn't that just as easily reflect an inability to construct proper frameworks? The whole operation seems a bit tricky in that results are gathered from instruments that may or may not represent reality, which are then judged against frameworks that may not be based on direct evidence, and then this is used to qualify further experimental findings.