Small-‘p’ philosophy in HCI

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ABSTRACT

As we explore the role of philosophy in HCI it is useful to look to examples from related fields. We outline two ways of engaging with philosophy, found in the cognitive sciences, which might be instructive for HCI. First we point to the risk of *Hegelian arguments* - *a priori* arguments against empirical research. Then we point to a more positive model, a highly practice-engaged approach we call "small-p" philosophy.

KEYWORDS

philosophy, HCI, cognitive science

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There is an interview on Youtube, between Lex Fridman, a researcher in AI at MIT, and Lisa Feldman-Barrett, a psychologist of emotion [4]. At one point the discussion turns to the notion of "reward" in machine learning. Fridman says of reward: *“[it’s] quite easy, it’s mathematics, there’s no philosophy to it”*. Feldman-Barrett immediately disagrees: *“Oh there’s philosophy to everything, whether you admit*

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it or not”. The first attitude makes a strong separation between philosophy and the apparatus of its home discipline. While this attitude may value philosophy, it sees it as dealing with a different order of material: perhaps ethics, or the role of computation in theories of mind. Certainly nothing so familiar, and methodological, as a reward function. The second attitude does not make such a separation - “there’s philosophy to everything”. There is not only philosophy in big issues, but also in the small details of methodology. In this paper we will discuss what might be behind such an attitude, and what we can learn from it in HCI.

The exchange above is also interesting in terms of who is involved: a computer scientist, and a psychologist - two of the major representative groups within HCI’s multidisciplinary population. While we shouldn’t read too much into such a short exchange, most of us are perhaps not surprised that it is the computer scientist who distances philosophy from his everyday methodology, and the psychologist who thinks philosophy touches “everything”. It is worth wondering why this is. Is there perhaps something in these two disciplines which naturalises their respective attitudes to philosophy? Is there even some pragmatic value to each? If so, what is the right attitude for HCI?

In this paper We will suggest that these different attitudes are related to different characters of the *theoretical backgrounds* of these disciplines - their conceptual principles and methodologies. We will suggest that HCI’s *theoretical background*, in its diversity, is more like that of cognitive science than computer science. Drawing on the work of the philosopher of cognitive science, Tony Chemero, we will point to two aspects of cognitive science’s relationship with philosophy: one which HCI might want to avoid, and one which we think we might want to embrace. I’ll call the thing we might want to embrace "small-p" philosophy. This is a methodologically-focused, modest approach to philosophy. We name it in contrast to a "Big-P" philosophy which deals with big names, and big questions, and which often keeps its distance from empirical data and methodology. It is important to say at the start that we don’t believe big-p and small-p are in competition, or mutually exclusive. We think both are valuable. However, since we think Big-P philosophy already gets plenty of attention, we will be singing the praises of a small-p approach.

HEGELIAN ARGUMENTS

The philosopher and cognitive scientist Tony Chemero discusses a kind of philosophical practice which we think HCI might want to avoid. He calls it a *“Hegelian argument”* [2]. The name comes from the (inaccurate [3]) legend that Hegel developed an *a priori* argument that there could not be an 8^{th} planet ... a few short years before that 8^{th} planet was discovered. Chemero uses this tale to illustrate the problem of "logical or conceptual arguments against empirical propositions and research programs" [2]. Chemero suggests such *Hegelian arguments* are a common, but unproductive part of cognitive science - with empirical research programs often dismissed on the basis of *a priori* arguments. Examples of these arguments are given in the sidebar below.

Examples of *Hegelian arguments*: Chemero gives two examples of *Hegelian arguments* in cognitive science. One is Fodor and Pylyshyn's quite influential, argument against modelling human cognition via connectionist networks - e.g. the neural networks which are the focus of so much current research. Chemero presents their argument as follows: "1. Human thought is systematic. That is, abilities come in clusters. 2. Systematicity requires representations with compositional structure. 3. Connectionist networks do not have representations with compositional structure. 4. *Therefore*, connectionist networks are not good models of human thought" [2]. Chemero points out that premises 1 and 3 are not empirically evidenced, and that 3 is controversial.

Another example concerns Chomsky's argument against theories which fail to posit an innate grammar. Again, Chemero emphasises the lack of empirical foundation in the arguments made.

[1]Chemero makes an exception for positive Hegelian arguments, when a mature discipline faces issues its theoretical apparatus cannot account for. In this case, positive *a priori* arguments detached from empirical practice can revitalise a discipline, as in physics in the early 20th Century.

Chemero suggests that Hegelian arguments arise in a discipline when it lacks a "unifying set of conceptual principles and experimental methodologies" - a unified "*theoretical background*". This, he suggests, is true of the cognitive sciences, where *a priori* Hegelian arguments are common. As much as these arguments are common, Chemero suggests they are also fruitless, particularly where they are negative. This is because the very same lack of agreement on *theoretical background* which gives rise to Hegelian arguments, also blunts their persuasiveness. Negative arguments, built on the assumptions of one *theoretical background*, understandably have little traction with those who are committed to another. Such arguments thus serve mainly to delineate boundaries.[1]

In our introduction, we suggested that we might not be surprised that a computer scientist considered philosophy more distant from his everyday work than did a psychologist. Everyday computer science, whatever its disputes and controversies, has a fairly unified conceptual account of computation. It does not, any more than digestion, attract Hegelian arguments. By contrast, a person working in the cognitive sciences might be expected to defend her research program against *a priori* dismissal by those with different *theoretical background*, and this might lie behind a willingness to see potential for "philosophy in everything". While the engagement with philosophy is valuable, such a motivation would be depressing.

It seems to me that in this one respect HCI is more often like cognitive science than like computer science: our methodologies and concepts are not strongly unified. This is surely part of the motivation for the increasing turn to philosophy addressed by this workshop. However, as we make this turn, our suggestion is that we try to avoid the temptation to engage in these negative, *a priori*, and essentially gate-keeping, Hegelian arguments.

PRACTICING SMALL-P PHILOSOPHY

We will now turn to a second, this time positive, aspect of the relationship between the cognitive sciences and philosophy. A more modest, practice-engaged approach, which we am calling "small-p" philosophy. We believe this offers a more constructive model for HCI's engagement with philosophy. Again, we draw this from ideas in Chemero's work, itself part of a relatively new strand of philosophy of science which emphasises the specificity of particular sciences and engages with empirical data and practical methodology. Chemero advocates for philosophers of science working very closely with scientists. Trained as a philosopher, he now works jointly across cognitive science and philosophy [1]. This work still pays close attention to theoretical assumptions, but, importantly, emphasises the detail of how these assumptions play out in practice. Theoretical analysis is used to sharpen awareness of inconsistencies, alternate interpretations, and even methodological errors. Where *Hegelian arguments* close the door on whole research programs, this approach takes a more granular, focused approach, pointing to specific issues in practice.

A good example of this comes late in Chemero’s book *Radical Embodied Cognitive Science* [2]. Much of chapter 8 is devoted to a discussion of experiments on "object exploration" behaviour in rats. In these experiments rats are observed exploring arenas, large by rat standards, and containing various objects which may be removed or substituted between experimental conditions. By observing patterns of exploration under different conditions, researchers can infer answers to questions about memory and spatial cognition. Chemero analyses this work to show how implicit philosophical assumptions can lead to serious methodological oversights. He shows that the implicit, neurochemical-reductionist, assumptions held by the researchers lead them to overlook important, confounding, factors in their experiments. Specifically, the exclusive focus on neurochemical factors means important environmental features are overlooked. Aptly for a HCI paper, the ignored features are affordances - no thought is given to the *kinds* of objects the rats are exploring, still less to what kinds of behaviour they afford. Is an object climbable? Is it inhabitable? Can the rat "rear" on the object, raising itself up on its hind legs? These details are not recorded, and seemingly not considered as a factor in exploration behaviour.

Typically we might expect a philosopher to focus on epistemic principles at this point, moving to some argument about the validity of classes of epistemic reduction. This might still veer close to the Hegelian arguments discussed above - an *a priori* dismissal of classes of research - which as we noted earlier, are generally toothless against work built on different theoretical assumptions. Instead, in Chemero’s work, philosophical insight motivates practice. In this case, Chemero works with other researchers to carry out experiments which show the effect of affordances on exploration behaviour, and demonstrate the issue this poses for the experiments discussed. Only then does he move to promote his own positive philosophical position, and its own, specific, practical consequences.

CONCLUSION

The point of this paper is not to promote Chemero’s philosophical conclusions. Rather we am trying to suggest that we can learn from aspects of his practice. We have called this “small-p” philosophy, and it involves a close and equal relation between philosophy and practice. Chemero’s work demonstrates this in its back and forth movement between the two, whereby philosophical thought both building on, and having consequences in, the details of methodology. This approach seems to me a very important pattern, which HCI researchers might keep in mind when turning to philosophy of any kind - not only philosophy of science. Whether we make use of Heidegger, Popper, Aristotle, or Harraway, we might be on guard against the temptation to make *a priori* arguments against bodies of practical work, and careful instead to ground our theoretical arguments in practice, and to connect them to specific issues of methodology. In short, perhaps what we want, rather than a Philosophy of HCI, is a more philosophical approach to the practice of HCI.

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