

NATURAL LANGUAGE, EMBODIED COMPUTATION, AND “THE TWO CULTURES”

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In his 1959 Rede Lecture in Cambridge, the scientist and writer C. P. Snow described how:

“I believe the intellectual life of the whole of western society is increasingly being split into two polar groups. When I say the intellectual life, I mean to include also a large part of our practical life Literary intellectuals at one pole - at the other scientists ... Between the two a gulf of mutual incomprehension - sometimes (particularly among the young) hostility and dislike, but most of all lack of understanding. ... Their attitudes are so different that, even on the level of emotion, they can't find much common ground.”

Since 1959, the balance and character of what Snow described has changed, in part due to the increasing ascendancy of algorithmic thinking and the computer. Our understanding of the relationship between computer and more 'human' thinking has benefited from the work of mathematicians such as Alan Turing and his successors. The development of the mathematics of computation and definability has provided a framework within which to clarify Snow's dichotomy between the 'Two Cultures'. More important, the mathematics can point to a practical heuristic, anticipated by Turing, via which one can explore and cohere different styles of mental and machine thinking and learning. Key to this is a focus on the mathematics of typed information, definability, and an already evident revival of interest in 'generalised recursion theory' and its wider significance.

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