KK'ing Diachronically

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In both epistemology and epistemic logic, a substantial amount of attention has been devoted to the famous *KK-thesis*. The characteristic axiom of *S4* interpreted epistemically amounts to the claim that a method δ knows that it knows p when it does know p: $K_\delta p \Rightarrow K_\delta K_\delta p$. There are, and have been, various arguments for an against this thesis both philosophically and logically. From the *modal learning theoretical perspective* [Hendricks 00], [Hendricks & Pedersen 00a], [Hendricks & Pedersen 00b] (which is the perspective obtained by mixing modal, tense and epistemic logic with concepts drawn from formal learning theory) the KK-problem is somewhat more interesting to study because δ may be subject to various program commands like data consistency, data-retentiveness and data-entailment. It turns out that the KK-thesis is valid *diachronically* in the sense that δ has to converge to the antecedent claim first, then wait, and then converge to the consequent claim observing a special consistency command. For instance if δ obeys data-retentiveness and thus tries to converge to the consequent claim as soon as it converges to the antecedent claim, hence attempts a *synchronic* validation of KK, then the KK-thesis is impossible to learn. Thus, the KK-thesis requires the agent to behave quite *strategically* in order to succeed on KK.

[Hendricks 00] Hendricks, Vincent F. (2000). *The Convergence of Scientific Knowledge a view from the limit.* In press: Studia Logica's Trends in Logic Series, Kluwer Academic Publishers.

[Hendricks & Pedersen 00a] Hendricks, Vincent F. & Stig Andur Pedersen (2000). *Operators in Philosophy of Science.* In preparation.

[Hendricks & Pedersen 00b] Hendricks, Vincent F. & Stig Andur Pedersen (2000). "Assessment and Discovery in the Limit of Scientific Inquiry". To appear in *Proceedings of the XI International Congress on Logic Methodology and Philosophy of Science* (LMPS'99), Kluwer Academic Publishers.

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