

Hodge-compositional Edge GPs

Composition of three GPs on the Hodge subspaces

- Kernel: $K_1 = K_G + K_H + K_C$
- Mutual independence hypothesis
- **Separate learning** of different components
- **Automatic determination** of Hodge components, instead of solving Hodge decomp.

Alternative formulation

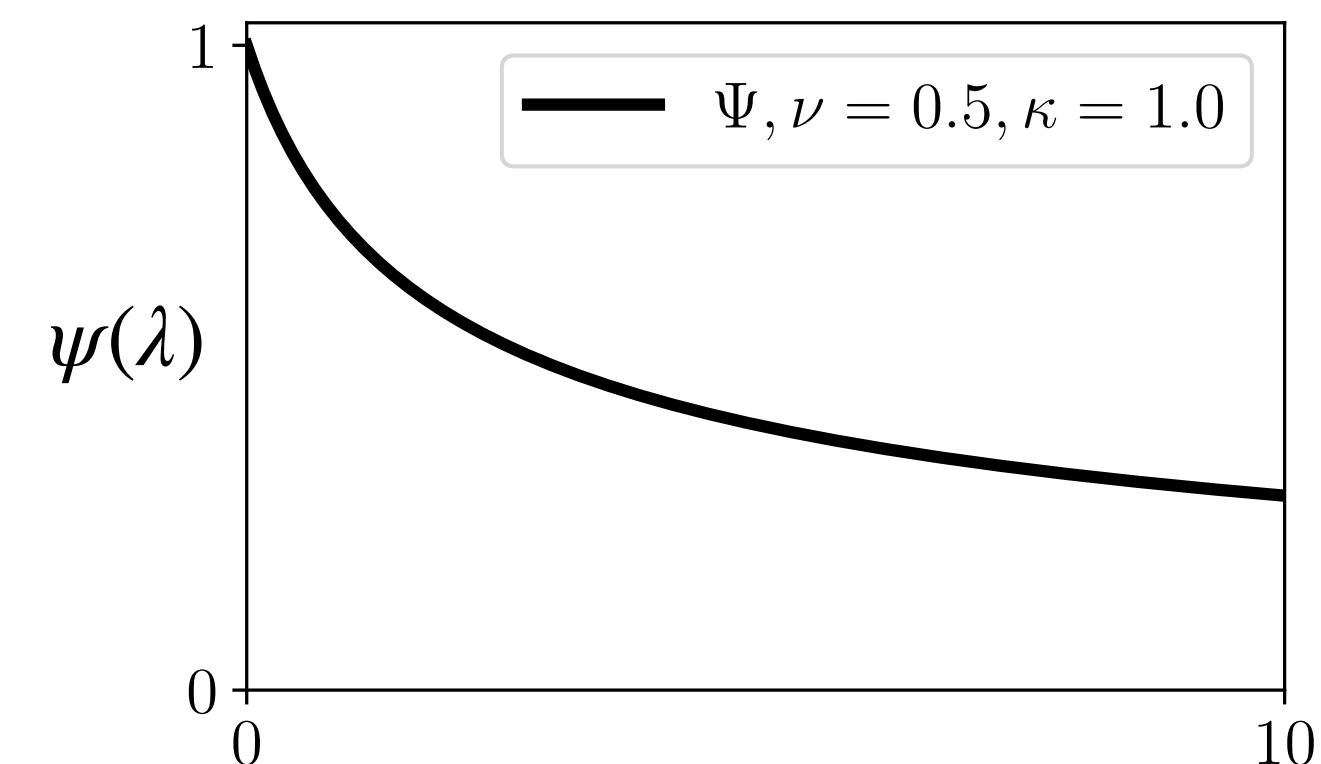
via node-edge-triangle interactions

- Derivatives of GPs are also GPs
- Induce edge GPs from node and triangle GPs

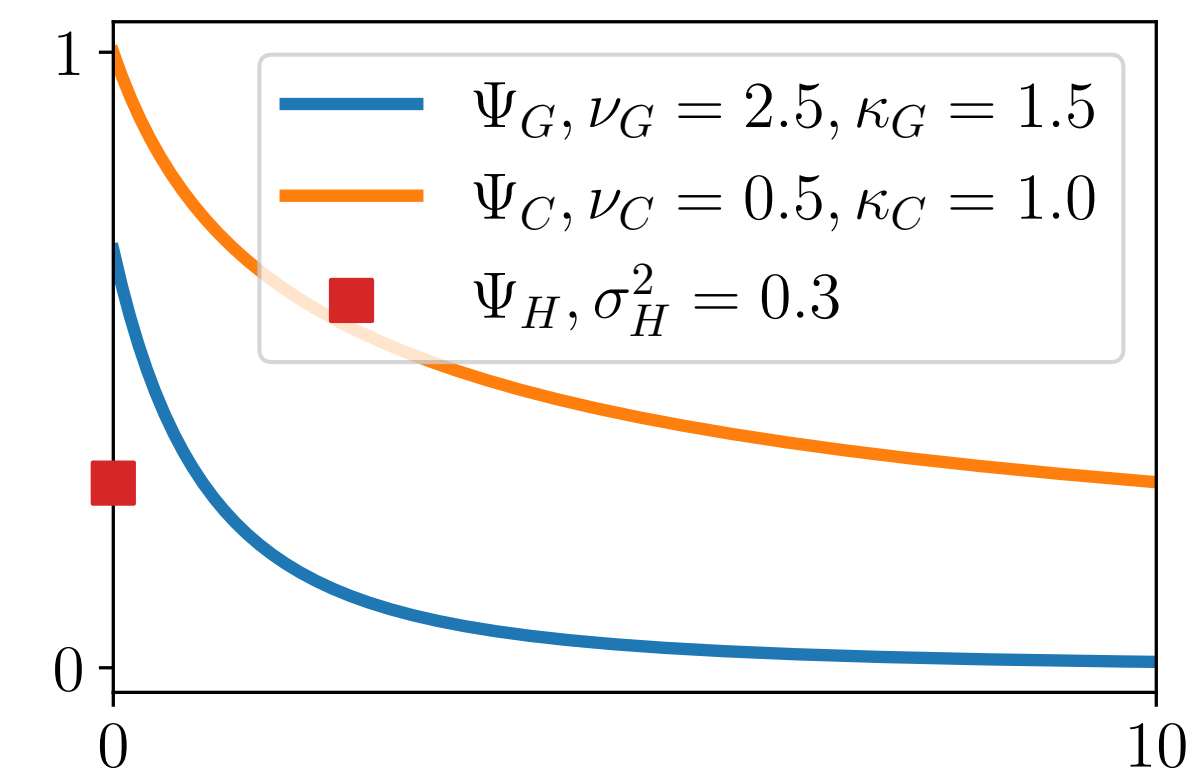
$$K_1 = K_H + B_1^\top K_0 B_1 + B_2 K_2 B_2^\top$$

- Induce node GPs from edge GPs

non-HC GP



HC GP



GP based Forex prediction

