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Interactive comment on "Reviews and syntheses: Four Decades of Modeling Methane Cycling in Terrestrial Ecosystems" *by* X. Xu et al.

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L370: It would be helpful to provide a bit more context for why Michaelis-Menten representation fails for multi-substrate, multi-consumer networks. Is it purely an equifinality problem?

[The Equilibrium Chemistry Approximation (ECA) was developed to represent chemical kinetics when there are multiple substrates and multiple competitors. These conditions are inconsistent with the original derivation of the Michaelis-Menten (MM) kinetics by Briggs and Haldane, and subsequent investigations over the past decades have indicated many cases where MM kinetics are inaccurate. Since the purpose of this paper is not to give detailed explanations of the various process representations in the models, but rather to indicate briefly their various components, we added a sentence to the

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manuscript and refer the readers to several publications applying this concept (Tang and Riley 2013, Tang 2016, Zhu et al. 2016).]

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