



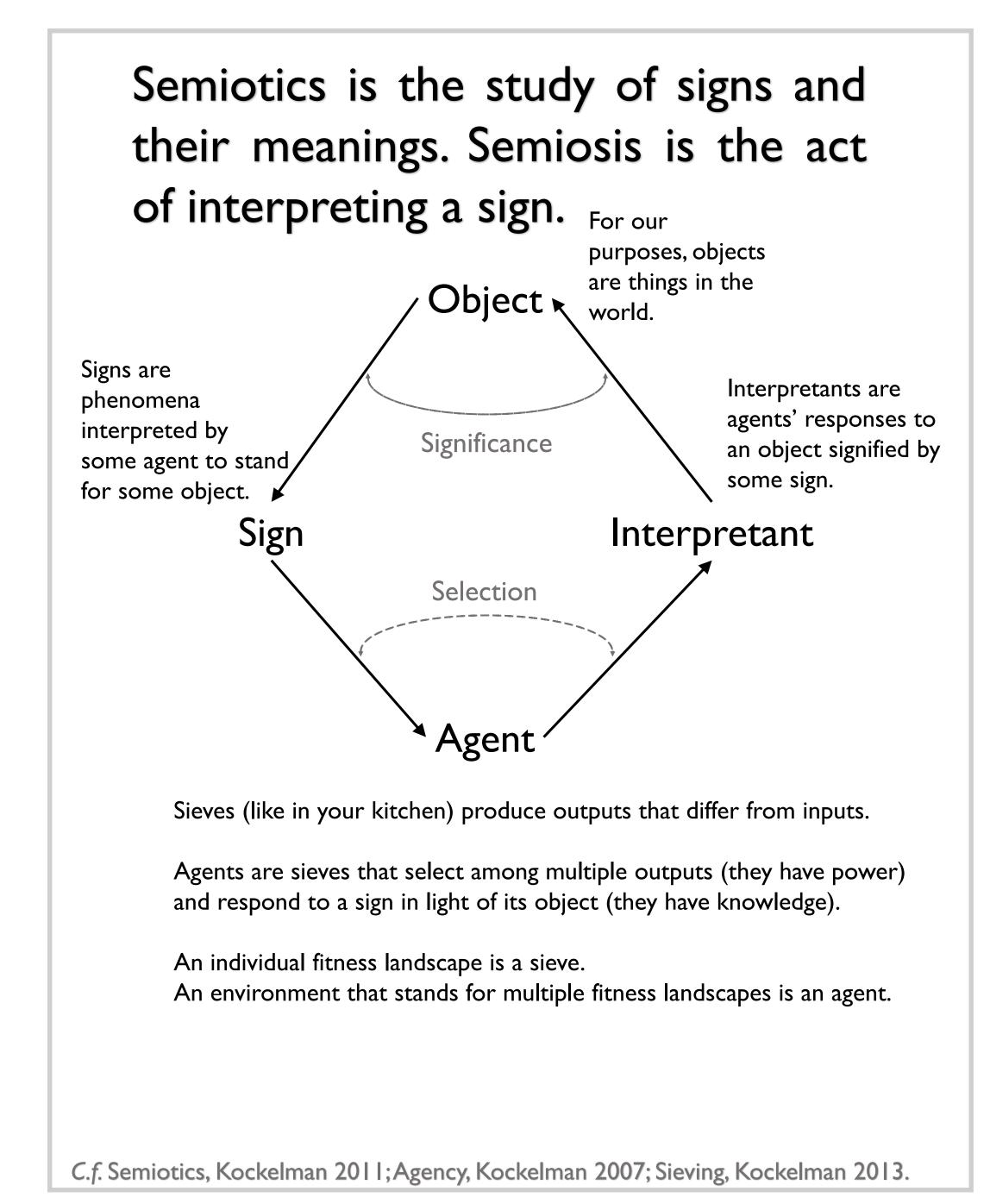
## The Semiotics of Evolution

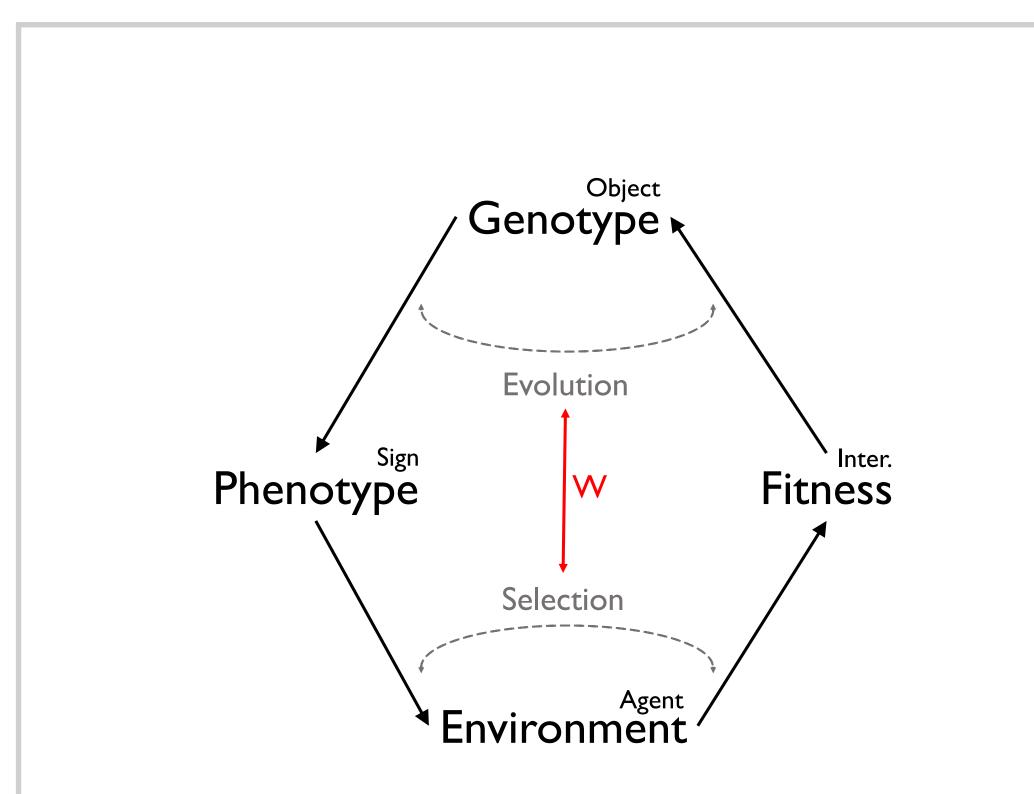
References, acknowledgements, and further info available at: ltaylor2.github.io/semiotics

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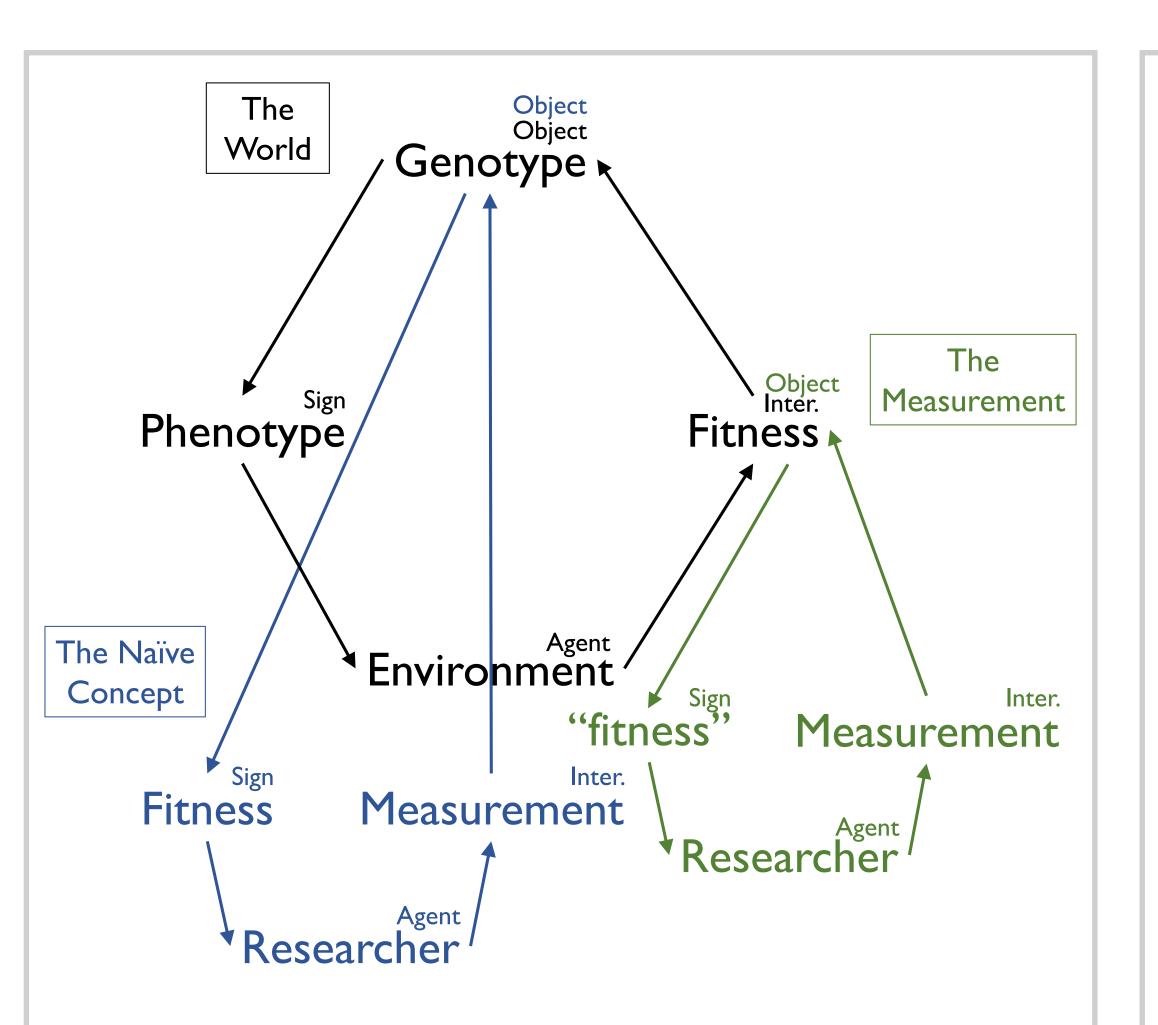






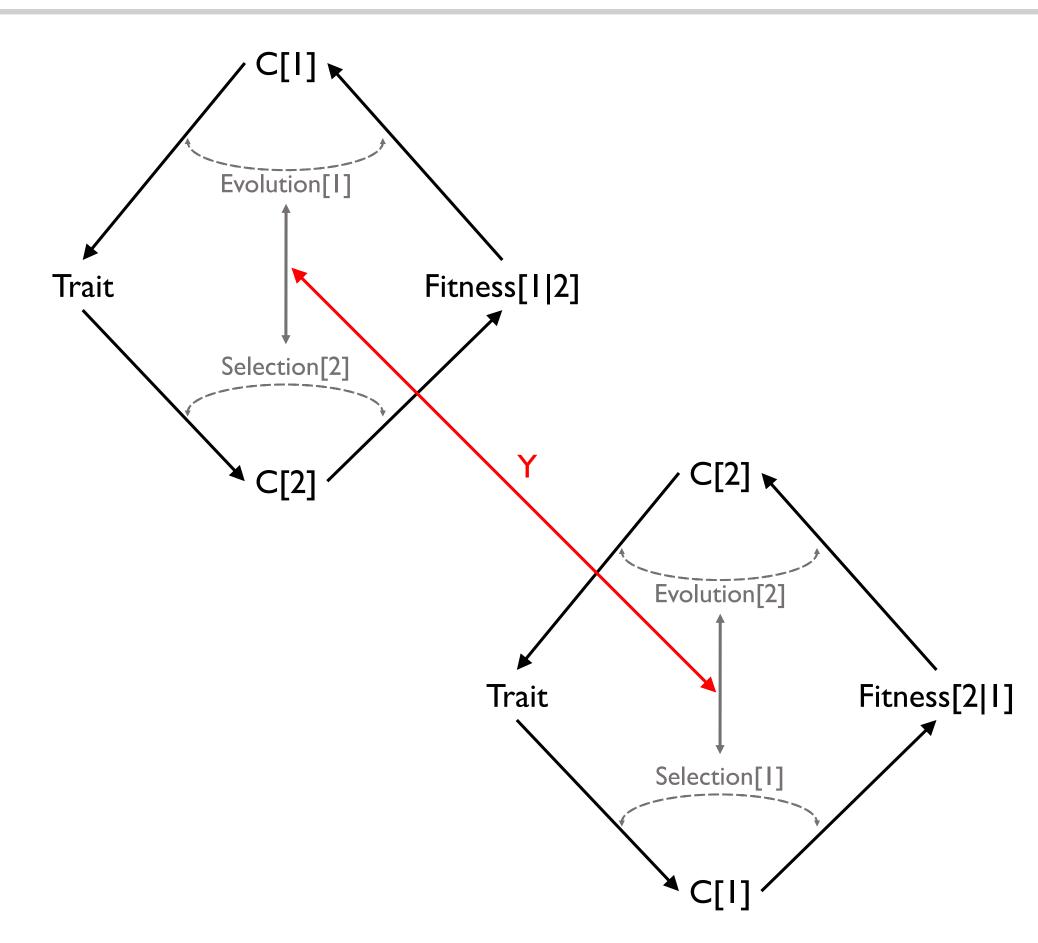
Claim #1: The distinction between phenotype and genotype requires semiotics. Selection is a semiotic act of an environmental agent. We refer to the process of selection when observable bias in the production of the sign corresponds to observable bias in the production of the interpretant (Relation W).

C.f. Phenotype, Johannsen 1911; Umwelt, von Uexküll 1934.



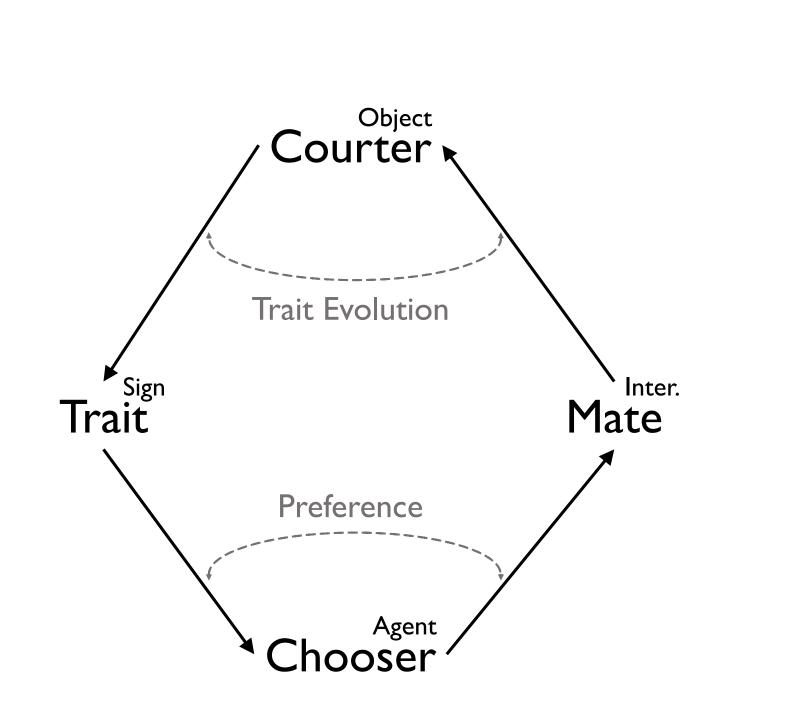
Claim #2: Fitness is an interpretant of an environmental agent, not a sign of a biological object. Research measurements always involve "error" from secondary semiosis.

C.f. Levins 1968; r as an appropriate fitness concept, Charlesworth 1994; Reaction norms and GxE interactions, Stearns 1992.



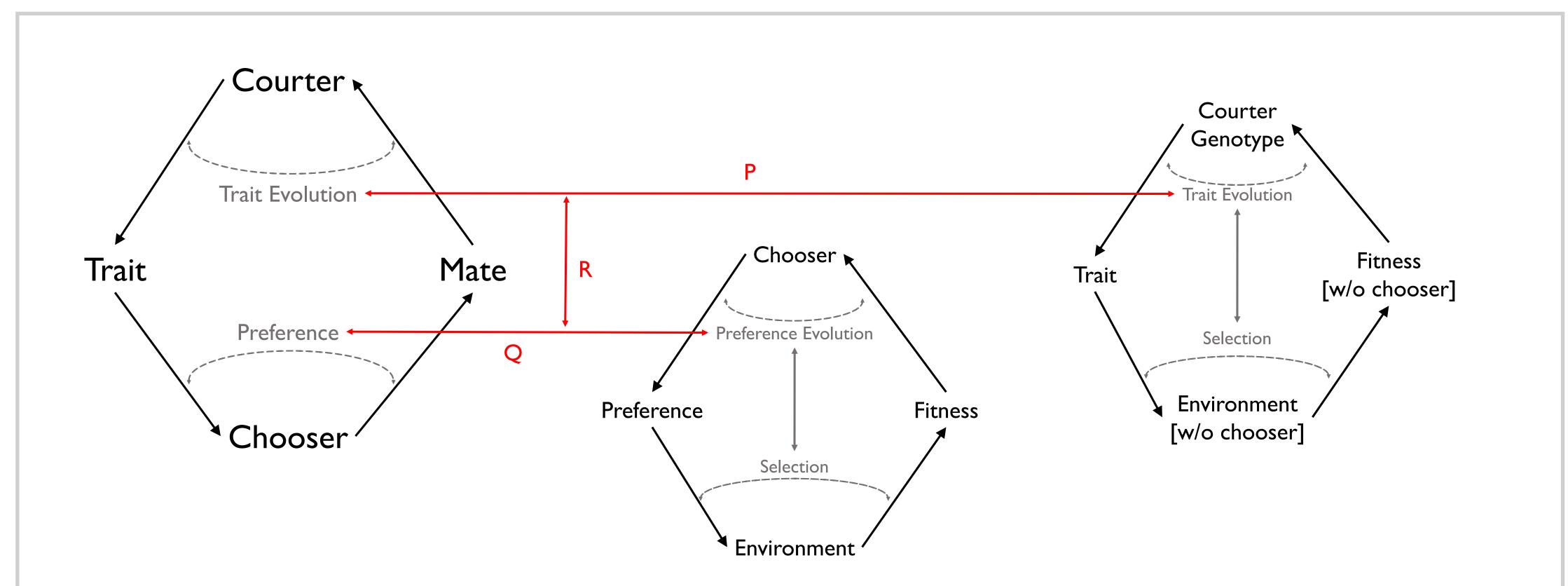
Claim #3: Evolving objects can be selecting agents in reciprocal semiosis. Understanding any such object requires understanding the dynamics between these events (Relation Y).

C.f. Evolutionary stable states, Maynard Smith 1982; Lewontin 1983; Eco-evo feedbacks, Post and Palkovacs 2009.



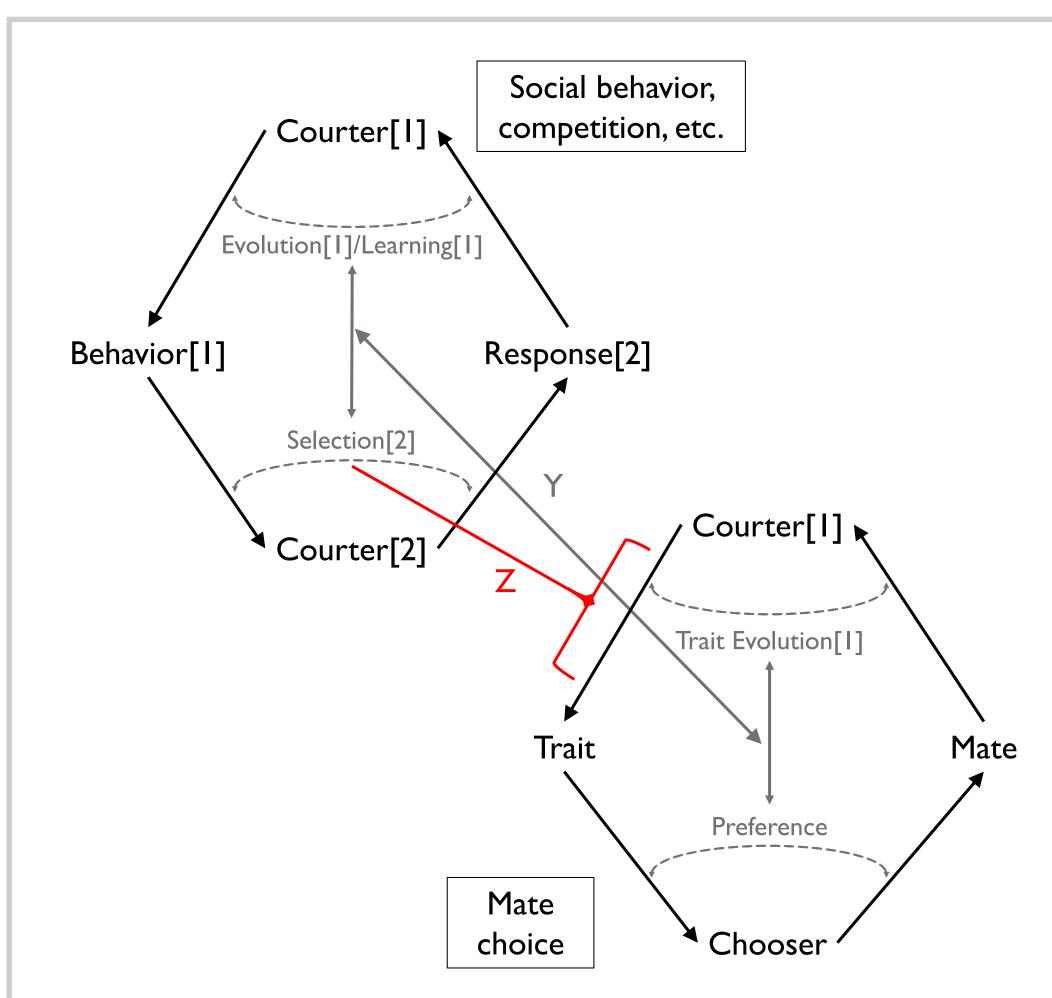
Claim #4: "Sexual selection" is selection where the final interpretant is the act "mate." The process of sexual selection is observable given some additional conditions (the agent and object are conspecifics, the trait and preference are heritable).

C.f. Mate choice, Darwin 1871, Fisher 1930; Helpful terms, Rosenthal 2017.



Claim #5: Choosers interpret courters, not the genotypes of courters. Chooser have their own preferences, not the preferences of the environment. Selection on the trait (apart from mate choice; Relation P) and selection on the preference (Relation Q) collapse the chooser agent into the environment agent and the courter object into the courter-genotype object. Courters can maintain costly traits when choosers maintain their preferences, because choosers are selective agents (Relation R). The costs of traits and preferences are constraints on the evolution and persistence of traits and preferences, not mechanisms for their evolution or persistence.

C.f. Hypotheses for sexual selection, Kirkpatrick and Ryan 1991; Null hypotheses for sexual selection, Prum 2010, 2012.



Claim #6: "Intrasexual selection" operates as noise in the production of the sign during mate choice (Relation Z), and therefore only results in sexual trait evolution as a function of mate choice dynamics (Relation Y).

C.f. Intrasexual selection, Darwin 1871; Semiotic noise, Kockelman 2010.