

Generative Theories of Interaction

Instruments Command focus

Substrates Effect focus

Instrumental Interaction

Instruments

Reification	Transform a command into an embedded, in-hand or remote instrument	Transform an effect into a substrate: Contains and structures objects of interest, manages internal constraints among objects and supports external dependencies
Polymorphism	Apply a command to multiple types of objects	Apply a constraint to multiple types of objects
Reuse	Apply previous commands to objects	Apply previous effects to objects

Interaction Substrates

Co-Adaptation

Discovery

Feedforward	Display available commands	Display potential constraints
Feedback	Display previously executed commands	Display existing constraints

Appropriation

Specialization	Curry a command parameter to create a new instrument	Create a Template from objects and or constraints
Adjustment	Tune command parameter values	Tweak command effects

Reciprocal Co-Adaptation

Instruments

If the command disappears
make it persist
If the command persists
make it interactive
If the command is interactive
make the effect a substrate

Substrates

If the effect disappears
make it persist
If the effect persists
make it interactive
If the effect is interactive
apply it as an instrument