Sculpting the space of actions: explaining human action by integrating intentions and mechanisms
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Figure I. Representation of an explanatory mechanism responsible for Φ-ing and some of its possible modifications, as discussed in Part I

Simplified representations of the explanatory mechanism responsible for the task- or explanandum phenomenon - Φ-ing at two different moments in time, t1 and t2. Between those moments several kinds of mechanism modification have occurred at different levels, as was discussed in chapter I.5. Mechanism modifications represented here are: increased (bold) and decreased (striped) interactions between components; a new feedback relation (yellow) between γ' and γ; new influence (blue) of component γ on component γ'; new interaction (blue) between Ψ-ing and Φ-ing, yielding an indirect influence of new input to Φ-ing. These mechanism modifications are together responsible for modifications of the cognitive and behavioral outputs of Φ-ing. Note that vertical red dotted lines represent constitutive relations between mechanism levels and that green dotted circles represent the context within which components figure.
Figure II. Representation of an explanatory mechanism involved in development or learning as accounted for by neuroconstructivist theories, as discussed in Part II

Simplified representations of the explanatory mechanism responsible for the task Φ-ing, in this case: singing. According to the neuroconstructivist theories of development and learning discussed in chapter II.2, two (partly overlapping) phases of learning can be distinguished. Mechanism modifications are involved in this (see figure I). The first phase of proceduralization is characterized by improved performance of Φ-ing, enabled by the modularization (blue circle) of some mechanism (sub-)components which enables their faster and stable processing, enabling increased (bold) and decreased (dotted) interactions between components at another level. This also facilitates additional interaction (blue) between tasks Φ-ing and Ψ-ing (e.g., acting). The second phase of explicitation is then characterized by increasing explicit control of Φ-ing, again facilitated by additional interactions (blue) between tasks. Due to representational redescriptions, multiple representations involved in the task (curved dotted arrows) are available to the agent, leading from an implicit and simple representation to more complex, hierarchically structured and explicit representations of the music piece. Note that vertical red dotted lines represent constitutive relations between mechanism levels and that green dotted circles represent the context within which components figure.
Figure III. Representation of explanatory mechanisms responsible for Φ-ing in a novice and an expert in a particular situation with their distinct sculpted spaces of actions, as discussed in Part III.