Current approaches to represent a robot skill can be divided broadly in two abstraction layers called symbolic encoding and trajectory encoding

Symbolic learning assumes a robot is already equipped with a set of primitives. The main focus here is to bring the primitives in a proper execution order or to derive planning capabilities

Trajectory encoding tries to approximate the underlying teacher policy (the state-toaction mapping) directly and is less goal oriented than the symbolic approach. This is also very often referred to as motor primitive or action primitive. Typically regression techniques are used to retrieve a generalized version of these low-level motions (joint positions, dynamics, torques as in Figure 1.3).

1. METRIC: One must ﬁrst determine the metric, i.e. de-termine the weights one must attach to reproducing eachof the components of the skill.   
   The metric acts as a cost functionfor the reproduction of the skill [33]  
   In other terms, ametric of imitation provides a way of expressing quanti-tatively the user’s intentions during the demonstrationsand to evaluate the robot’s faithfulness at reproducingthose
2. optimal controller to imitate bytrying to minimize this metric (e.g., by evaluating sev-eral reproduction attempts or by deriving the metric toﬁnd an optimum

To learn the metric (i.e., to infer the task constraints),one common approach consists in creating a model of the skill based on several demonstrations of the sameskill performed in slightly diﬀerent conditions (Figure59.9). This generalization process consists of exploit-ing the variability inherent to the various demonstra-tions and to extract the essential components of thetask. These essential components should be those thatremain unchanged across the various demonstrations