User Actions
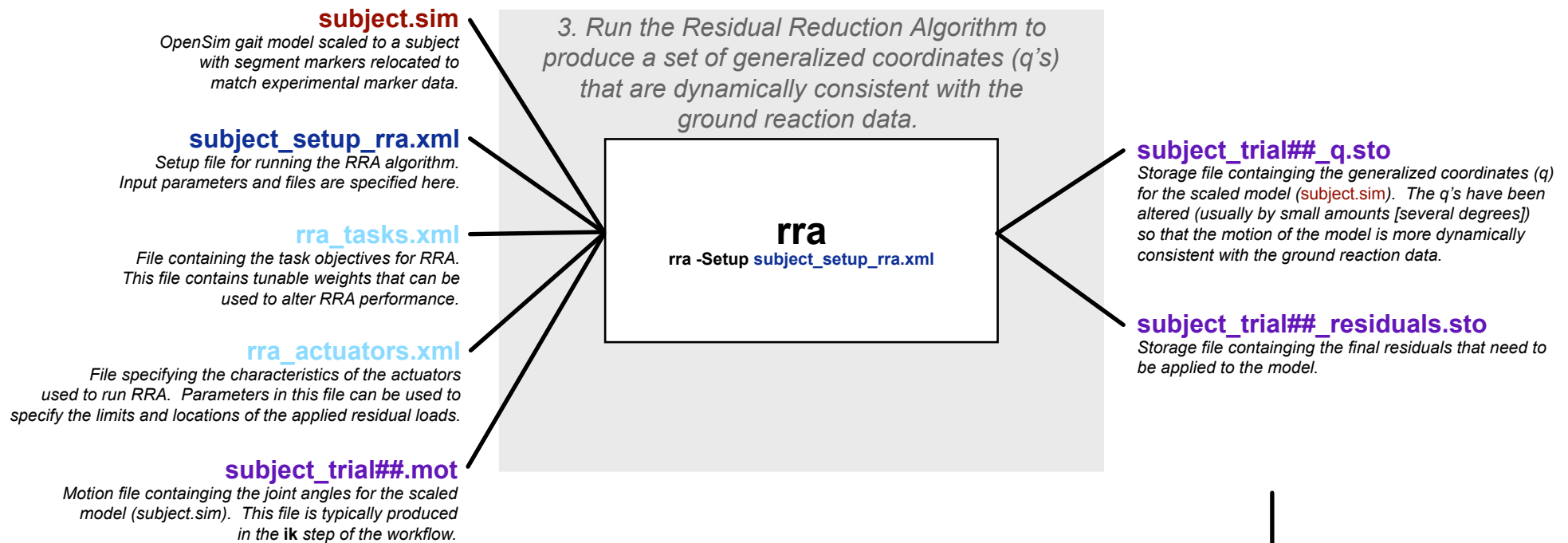
a. Edit the setup file subject_setup_scale_ik.xml to specify the settings for the ik command. All parameters, input files, and output files are specified within this setup file. Detailed comments are contained within the setup file describing each parameter, input file, and output file. There are no restrictions on the names of files, although the conventions shown below are typically followed. In the file names below, it is assumed that the user will make the appropriate substitution for "subject" and "trial##".

b. Execute the command "rra -Setup subject_setup_scale_ik.xml". This command produces a file containing altered generalized coordinates (q's) so that the motion of the model is more dynamically consistent with the ground reaction data (subject_trial##_q.sto). In general, it is not possible for RRA to eliminate residuals entirely. Therefore, the rra command produces an additional file containing the remaining residuals that need to be applied to the model (subject_trial##_residuals.sto). Both these files will be used in the subsequent computed muscle control (cmc) step.

subject.sim
OpenSim gait model scaled to a subject with segment markers relocated to match experimental marker data.

subject_setup_rra.xml
Setup file for running the RRA algorithm. Input parameters and files are specified here.

rra_tasks.xml
File containing the task objectives for RRA. This file contains tunable weights that can be used to alter RRA performance.

rra_actuators.xml
File specifying the characteristics of the actuators used to run RRA. Parameters in this file can be used to specify the limits and locations of the applied residual loads.

subject_trial##.mot
Motion file containging the joint angles for the scaled model (subject.sim). This file is typically produced in the ik step of the workflow.

3. Run the Residual Reduction Algorithm to produce a set of generalized coordinates (q's) that are dynamically consistent with the ground reaction data.

rra

rra -Setup subject_setup_rra.xml

subject_trial##_q.sto
Storage file containing the generalized coordinates (q) for the scaled model (subject.sim). The q's have been altered (usually by small amounts [several degrees]) so that the motion of the model is more dynamically consistent with the ground reaction data.

subject_trial##_residuals.sto
Storage file containging the final residuals that need to be applied to the model.

3. Run the computed muscle control algorithm.

cmc