Specification for Paths in Geometry Tunes

1. **Invariants**
   1. If at least one path has been created, there is a currently selected path for editing.
   2. This path appears in the paths menu at the top right of the screen and when this menu is tapped, it remains at the top of the menu.
   3. The maximum number of paths is MAX\_NUM\_PATHS.
2. **Creating a path**
   1. If no paths have been created
      1. The “Clear Path” button is deactivated but visible (also grayed or something similar).
      2. The paths menu reads “<Create New Path>.”
      3. Tapping the paths menu creates a dialog box in the center of the screen that allows the user to name the new path. It defaults to “Path 1.”
      4. When a path is created, it becomes the currently selected path.
   2. If one or more paths have been created
      1. i, iii and iv from above apply here.
      2. If MAX\_NUM\_PATHS paths have been created, the “<Create New Path>” option in the paths menu reads, “Maximum number of paths is 8, delete a path to create a new one.”
      3. Otherwise, tapping the menu expands the currently selected path to a list of the remaining paths ordered by how recently they were edited/created and the “<Create New Path> option.”
3. **Editing a path**
   1. A button at the top of the screen in the path editing section reads “Edit.” This button is deactivated (and grayed or something similar) when there are no paths.
   2. Pressing this button makes a movable toolbox visible. This toolbox is labeled “Path Editor” and when it is visible, tapping within the grid does not open the piano.
   3. The path editor leaves the screen when the user taps the “Done” button within it.
   4. The buttons in the path editor are as follows:
      1. Undo/Redo
         1. Activated or deactivated depending on the current stack of path related user actions.
         2. Extended feature: an undo and redo that say what action they will do, e.g. Undo Point or Redo Connect
      2. Add
         1. This button is either pressed or unpressed (like a switch).
         2. When pressed, tapping anywhere on the grid puts a point in that spot and adds it to the end of the path.
      3. Delete
         1. This button is either pressed or unpressed but if it is pressed when “Add” is already pressed then “Add” becomes unpressed. Vice versa as well.
         2. Tapping a note or within a distance from a note deletes that note. Let’s discuss the case of notes that are close together later.
         3. If the user attempts to delete the last remaining note, an “Are you sure?” is prompted. If “yes” is tapped, the app returns to playback mode where the most recently edited/created path is currently selected for potential editing.
4. **Playback**
   1. In the paths menu, there is a checkbox next to each path, aligned right. If a box is checked, the respective path is visible and will be played during playback. When a path is created it defaults to checked/visible.