Qiana observes that she is accumulating quite a few macros – and worries that she soon could be drowning in them! Affra explains that MxM provides a mechanism for organizing macros (and other runnables). Furthermore, Affra walks Qiana through a process or organizing the macros that she has thus far defined in a reasonable manner.

**Qiana:** I like the macro concept. But if I keep writing new ones I will be awash in a sea of them!

**Affra:** Good observation. But worry not, dear friend. The guy who designed and implemented MxM actually wanted to use it! He realized that among most important matters relating to practical use of any cognitive tool is a knowledge management system – so he built a simple mechanism into MxM that serves pretty well to help you organize your programs.

**Qiana:** Tell me about this guy.

**Affra:** I really don’t know much about him. His name is Samson. He is evidently a rather sketchy character – not one to engage in conversation if he can help it. But he does seem to know a little something about modelling certain aspects of music.

**Qiana:** Hmmm.

**Qiana:** Well, can you give me an idea about how to keep from being overwhelmed by the macros?

**Affra:** Of course! To begin with, think in terms of a space that can be hierarchically partitioned into subspaces. It goes by the name of Clay Space. Some of the subspaces are called *regions*. Others are called *points*. I’ll just tell you about regions for the time being.

**Qiana:** Alright.

**Affra:** When you run MxM you are taken to the main location, called the *clay* region. Actually, this is the only region that exists when you launch MxM for the very first time.

**Qiana:** And all of the macros that I have written so far are in this one region.

**Affra:** Correct!

**Qiana:** Please tell me more.
Affra: There are a number of Clay Space operators.

Affra: The ENTER meta command is used to create a new region as a subregion of the region you are currently in. The parameter is the name of the new region.

Affra: The LEAVE meta command will return you from a region to its parent region – provided you are not in the main location.

Qiana: Should I give it a try?

Affra: Sure. On something short and simple, however – so I will have a chance to tell you about some other Clay Space operators!

Qiana: What do you suggest?

Affra: Get into MxM. Then enter the ⟨ ENTER(0Z) ⟩ meta command to enter a region called OZ from the main location. It will be empty when you enter it, as you can verify by typing ⟨ -S? ⟩.

Qiana: I’m in!

Affra: Now type ⟨ RB1 >> PL 7RP PL LP P 2LP PS RP PS RP P RP P ⟩.

Qiana: Can I play it without defining the macros ⟨ PL ⟩ and ⟨ PS ⟩ in OZ?

Affra: Yes! In Clay, macros in ancestor regions (parent, grandparent, et cetera) are accessible from the current region. Since the two macros you mention are among the standard macros that you already defined in the main location (the parent of OZ), they are accessible from OZ! See for yourself. Run ⟨ RB1 ⟩.

Qiana: Yay Dorothy!

Affra: Now return to the main location by entering the ⟨ LEAVE ⟩ meta command.

Affra: And try to run ⟨ RB1 ⟩.

Qiana: Can’t do it! MxM says no such thing to be found!

Affra: Quite right. Whatever it defined in descendent regions (children, grandchildren, et cetera) is not available in the current region.

Qiana: OK. But I don’t like all of the macros that I previously defined sitting atop the hierarchy of Clay Space regions, in the main location. I would like to move them.

Affra: I’ve got just the command for you! Actually, MxM has just the meta command for you! It is called SPAWN.

Qiana: What does it do?
**Affra:** The **SPAWN** meta command does three things: (1) it creates a child – a subregion – of the current region with the name that accompanies the meta command and it copies all of the definitions in the current region into the newly created region; (3) it deletes all of the definitions from the current region; and (4) it enters the newly created region.

**Affra:** Try it! Enter \(-\text{SPAWN(STARTERS)}\) and you will see that all of the information from the main location is copied into a newly created subregion of the main region called \texttt{STARTERS}, the definitions all disappear from the main location, and the focus of MxM’s attention is transferred to the newly created subregion, \texttt{STARTERS}.

**Affra:** Be sure to verify where you are by entering \(-@?\) and what the contents of the \texttt{STARTERS} region is by entering \(-S?\) – and play a thing or two (i.e., \texttt{THING1} and \texttt{THING2}).

**Qiana:** They work. Everything that was in the main location is now in \texttt{STARTERS}.

**Affra:** Why don’t you see for yourself that nothing is left in the main location, and then return to \texttt{STARTERS} by entering \(-\text{LEAVE}\) and then \(-S?\).

**Qiana:** It is as you say – nothing there!

**Qiana:** But I was under the impression that it is a good idea to place all of the Standard Macros in the main location – so that they can be used from wherever. Yes?

**Affra:** Yes! You should put them back. The easiest way to do it is one at a time. This Samson guy didn’t exactly exhaust himself writing Clay Space convenience commands. But he did define a meta command with a rather suggestive name to “float” commands from a region to its parent region. Guess what it is called.

**Qiana:** \texttt{FLOAT}.

**Affra:** YES!

**Qiana:** No.

**Affra:** YES!!

**Affra:** Enter the \texttt{STARTERS} region again by typing \(-\text{ENTER(STARTERS)}\).

**Affra:** Now why don’t you enter \(-\text{FLOAT(PL)}\), and then \(-\text{FLOAT(PS)}\), and then \(-\text{FLOAT(PLL)}\), and then \(-\text{FLOAT(PSS)}\), and then \(-\text{FLOAT(PD)}\) – to float all of the standard play macros up to the standard region.

**Qiana:** Done.
Affra: Now enter ⟨-S?⟩ to see that they are among the missing.

Qiana: They are!

Affra: Next, why don’t you float the five standard macros that pertain to resting the note from the current region (STARTERS) to the parent region (CLAY).

Qiana: OK. I entered ⟨FLOAT(RL)⟩, and then ⟨FLOAT(RS)⟩, and then ⟨FLOAT(RLL)⟩, and then ⟨FLOAT(RSS)⟩, and then ⟨FLOAT(RD)⟩ – and checked to see that they are no longer present in STARTERS. I sure hope the appear in the main location!

Affra: Take a look. Enter ⟨- LEAVE⟩ to get back to the main location, and then enter ⟨-S?⟩ to see what is there.

Qiana: Ten standard macros! Cool!!

Affra: Enough for today. You are on your way to a nicely organized Clay Space. Don’t forget to exit MxM properly, as always. See you next time!