**Interview Transcription**

Date: February 19th, 2013

Time: 9:00 AM – 10:20 AM

Interviewee: Dr. Salamah

Interviewer: Dr. Ann Gates and Software Engineering class

The transcription below is taken from an audio-visual recording. The interviewee and interviewer were asked to review the transcription and to check for correctness. Additional information has not been added—only minor edits and clarifications. The transcriber used “…” when the audio was not clear and could not be transcribed. Brackets are used when the reviewers added clarifying words. Words or phrases that are not adding information may have been deleted.

Dr. Salamah: So, today my goal is just for five to ten minutes to go over what these mean and then I guess we’ll open up for questions.

Dr. Gates: So what we’re going to do this time is put together your questions, we’re going to go by each team and ask a question from your team that you feel has not been answered yet.

Dr. Salamah: Okay so, the idea of this pattern and scope combination is to help the scientist to come up with properties of interest. There are many properties that can be specified. So the use of pattern and scope helps them [the scientist] focus on what they want and actually triggers some questions within them to come up with the best possible property that matches the original intent.

So in the first description that I have here is well multiple diagrams of what a scope is. And a scope is just the portion of the data in this case that you care about the property holding in. So in some cases you care about the whole data set, you want that property to hold at all the data set and that’s where the global scope comes in. So you’re saying I want that property. I want the temperature level to fall below, I don’t know, zero over the whole set of data. So take that property over every single reading. That’s what the global scope is for that’s the simplest one.

Ah, the next one is the before R scope. So before a specific event happens, before something happens, that’s the part of the scope that we care about. From the beginning up until that point where that event or condition I’m concerned about holds. So if you see here this diagram has in the before R I have the blue parts is the scope of interest, the part of the data I care about that I’m gonna check my properties over, the rest of this I don’t care about. The property can hold or not hold I’m not concerned, it’s not my concern. Questions on that so far? Something important about the before R scope is that the scope does not include that reading where R holds. So the scope is only for those readings or readings within that set that receive what R holds. When R holds is not part of the scope. Questions? I am not sure you are getting this because of the way you’re looking at me. Are, or is it too easy?

Dr. Gates: So if we we’re looking at *before* *R* and we’re looking at real near time, there’s two ways we can monitor near real time and after the fact we have the data reading from last year or a week before and now you are going to go in and evaluate it. For *before R*, can you do that check in near real time?

Dr. Salamah: Probably not, it has to be over a certain data. The *before R* has to be over a certain data and is mostly about the pattern and less about the scope. Scopes come in when you’re dealing with historical data. You’re limiting what part of the data that you’re looking at. The next one we have to go over is after L.

So the next scope is your set of interest, set of data of interest is the one that happens after the condition L happens. So let’s say that the condition L is the temperature reaches one hundred, after that then look at all the data that comes in after that, that’s where my property has to hold. And that’s what we were talking about, if that’s the condition then that’s applicable to real time, once that condition happens now I have to report any time my property is violated .

Then comes the next two interesting scopes. The between L and R scope and the after L until R scope. Amm, for the first three scopes those are not repeating scopes meaning we have only one, single scope. For example the before R I only have one before R scope even if R the associated condition with R holds many times, I don’t care I care only about only the first occurrence of R.

You understand that?

Okay, so only the first occurrence of R is the one I hold up that I care about and my scope becomes every data set, every reading that happened before that R and the same thing for am after L. Of course global scope only has one, which is the whole data set. Amm this is a little bit difficult for the between L and R scope. The between the L and R scope I care about the interval between the occurrence of the condition L until the occurrence of the condition R. That’s my scope. But this scope could repeat so L followed by R holds I have a new scope. Right? So if I have L temperature is fifty, R temperature is one hundred then I build a scope. If those two sub conditions hold after that then now I have another scope after that. And with these I can have nested scopes. This is why it’s a little bit hard. Ah because the last L is merged with the first R. So if you see on the diagram that I have I have two scopes one with light blue and one with dark blue. My dark blue is actually this whole scope. It’s from the first L to the last R. Including that big scope that includes the light blue scope. But I’m checking within two scopes I’m checking the big one and I’m checking also the small one. You are rarely going to have nested what you will have the situation that I was describing before. You have an L followed by an R and after that another L followed by a R. That’s more typical than having nested scopes.

Questions so far?

Dr. Gates: Will that create a problem?

Dr. Salamah: The nested?

Dr. Gates: Yes. If we have the temperature, what we were talking about yesterday, temperature equals one hundred. So if this reading is one hundred, is it going to be expecting on the right hand side temperature reaching eighty, we might not be able to nest it right?

Dr. Salamah: And even if you nested this it’s really not coming up with the spirit of this, you’re going be just checking the smallest scope which is the last L, and again this is, this is not the typical type of scope that you will be facing. What I think that you will see more is condition L holding followed by condition R, that becomes your scope and then you start all over again at some later point. Okay? We’re good?