Traduction sosADL to IOSTS

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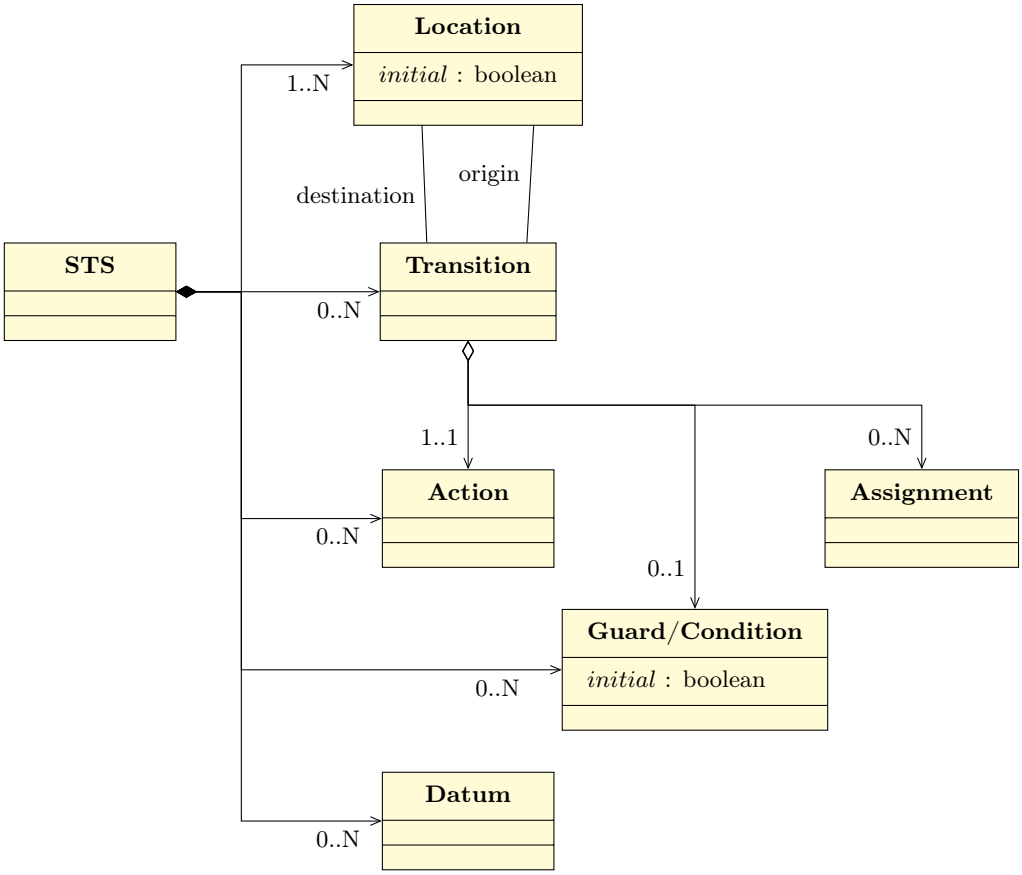
1 STS Meta-Model



2 SoSADL to STS

To construct STS for a given SoSADL behavior, we need to overload the definition of STS with a set of last location in order to memorize the last locations we have created during the STS construction. Once a STS model of the SoSADL behavior is constructed this set of states can be omitted.

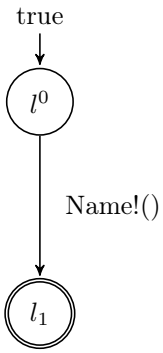
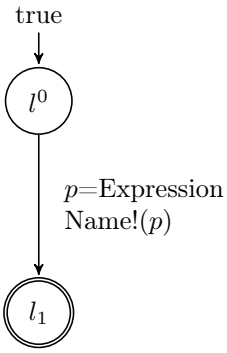
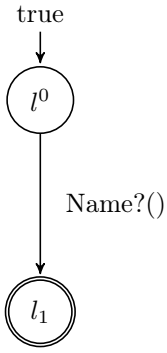
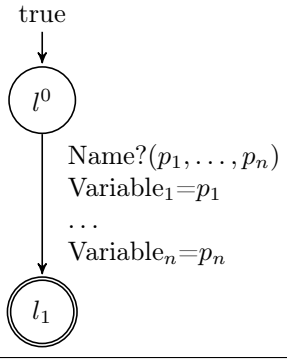
⟨Behavior⟩ := ⟨BehaviorStatement⟩$^{+}$

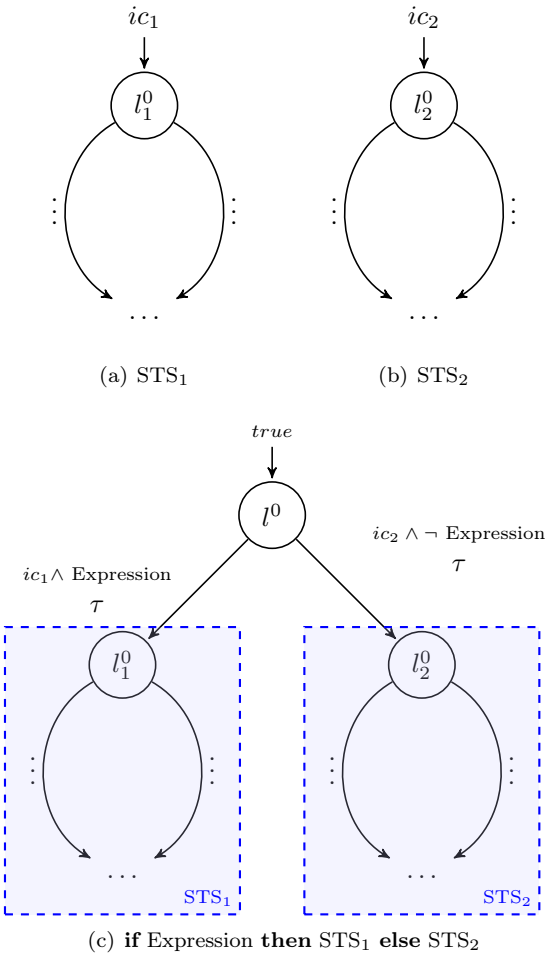
⟨BehaviorStatement⟩ := ⟨Valuing⟩ |
⟨Action⟩ |
⟨Assert⟩ |
repeat ⟨Behavior⟩ |
if ⟨Expression⟩ **then** ⟨Behavior⟩ [**else** ⟨Behavior⟩] |
choose ⟨Behavior⟩ **or** ⟨Behavior⟩$^{+}$ |
foreach ⟨Name⟩ **in** ⟨Expression⟩ ⟨Behavior⟩ |
do ⟨Expression⟩ |
done |
behavior ((⟨Expression⟩ (, ⟨Expression⟩)*)$^{?}$)

⟨Action⟩ := **via** ⟨Name⟩ **send(** ⟨Expression⟩$^{?}$) |
via ⟨Name⟩ **receive(** (⟨Variable⟩(, ⟨Variable⟩)*)$^{?}$)

⟨Assert⟩ := **tell** ⟨Name⟩ **is** ⟨Expression⟩ |
ask ⟨Name⟩ **is** ⟨Expression⟩

2.1 Input/Output Actions

via Name **send()**	
via Name **send(** Expression **)**	
via Name **receive()**	
via Name **receive(** Variable$_1$,...,Variable$_n$ **)**	



(a) STS$_1$ (b) STS$_2$

(c) **if** Expression **then** STS$_1$ **else** STS$_2$

Figure 1: IfThenElse

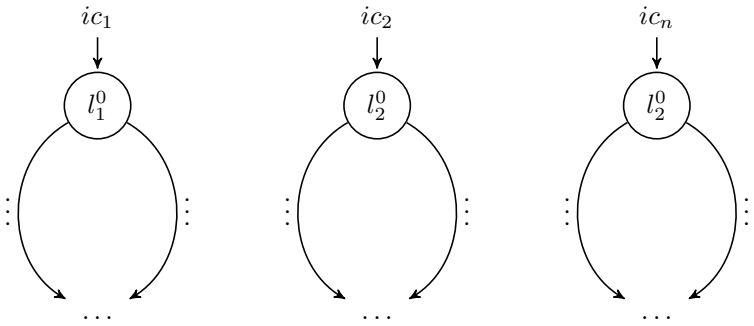
2.2 Input/Output Actions

Let STS$_1$=$\langle D_1, \Theta_1, L_1, l_1^0, \Sigma_1, T_1\rangle$ and STS$_2$=$\langle D_2, \Theta_2, L_2, l_2^0, \Sigma_2, T_2\rangle$ be two symbolic transition systems with the disjoint set of data D_1 and D_2 (*i.e.* $D_1 \cap D_2 = \emptyset$), then the result of the **IfThenElse(**STS$_1$,STS$_2$) operation is the STS=$\langle D, \Theta, L, l^0, \Sigma, T\rangle$, where.

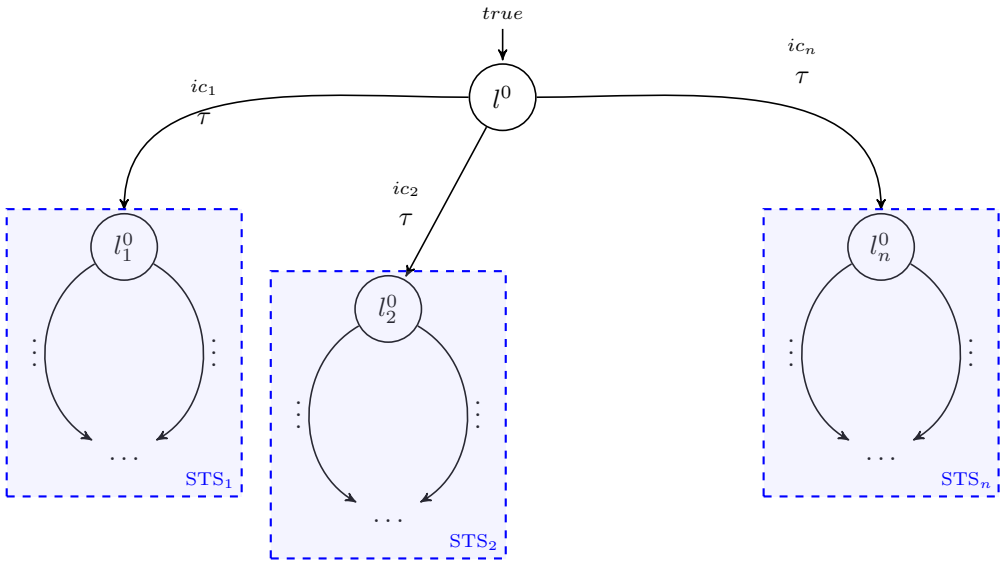
2.3 Choose

2.4 Concatenation of two STS

2.5 Repeat

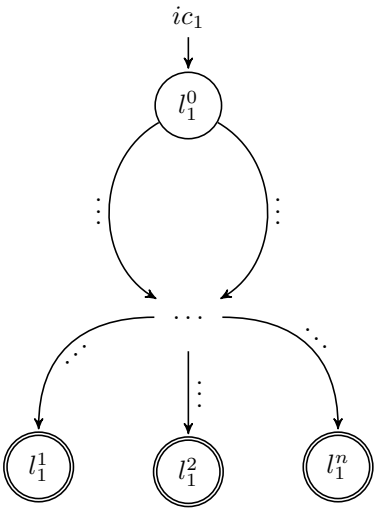


(a) STS_1 (b) STS_2 (c) STS_n

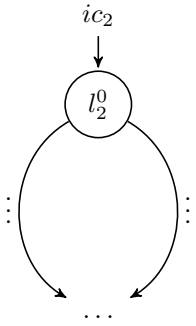


(d) **choose** STS_1 **or** STS_2 **or** ... **or** STS_n

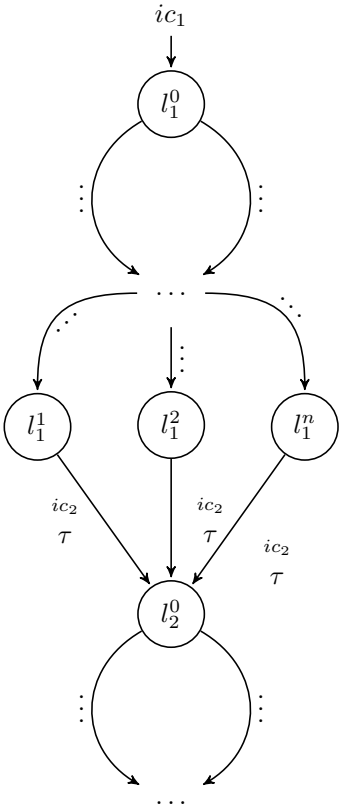
Figure 2: Choose



(a) STS_1

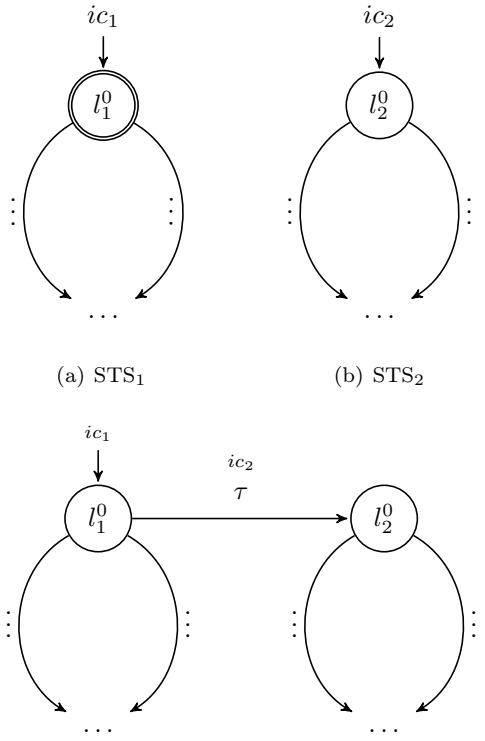


(b) STS_2



(c) Concatenation(STS_1, STS_2)

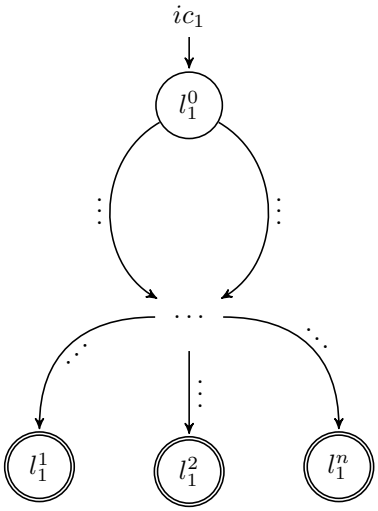
Figure 3: Concatenation (case 1)



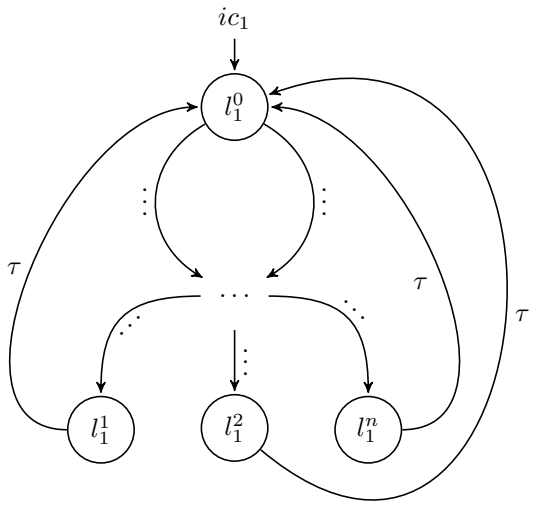
(a) STS_1 (b) STS_2

(c) STS_1

Figure 4: Concatenation (case 2)

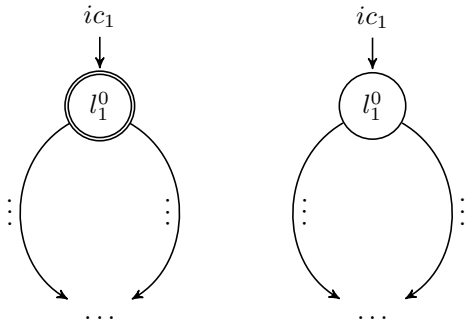


(a) STS



(b) Repeat(STS)

Figure 5: Repeat (case 1)



(a) STS (b) Repeat(STS)

Figure 6: Repeat (case 2)