

Re: The state machine of no input

Source: <http://sci.tech-archive.net/Archive/sci.math/2004-10/1773.html>

From: Mark \ (The WannaBe\) (mark_hsn_at_hotmail.com)

Date: 10/06/04

Date: Wed, 6 Oct 2004 18:53:19 +0200

"Mark (The WannaBe)" <mark_hsn@hotmail.com> wrote in message
news:ck17o5\$27ai\$1@news.cybercity.dk...

>

> ----- Original Message -----

> From: <briggs@encompasserve.org>

> Newsgroups: sci.math

> Sent: Wednesday, October 06, 2004 2:12 PM

> Subject: Re: The state machine of no input

>

> > In article <cjv0qb\$72c\$1@news.cybercity.dk>, "Mark \ (The WannaBe\)" >

> <mark_hsn@hotmail.com> writes:

> > > Hi

> > >

> > > I know I am already having some threads going on, but I take my
chance,

> > > because I suddenly lost my head on this on question. I am still the

> > > Danish

> > > wannabe of computer science and that can be the basis for very dumb

> > > questions from me, but I try my best not to ask something I could have

> > > found

> > > out my self by reading a book or searching google. I hope this is the

> > > right

> > > forum to also ask a question like this and I have been really grateful

> > > for

> > > previous replies by William Elliot which have helped me to do some

> > > cleaning

> > > up in my wannabe head full of wrong views of the land of dark magic of

> > > computer science.

> > >

> > > I have been given a state machine, which takes no input, even though
it

> > > has

> > > state transitions with explicit rules for each state transition. I

> > > have

> > > to

> > > prove a property about the language accepted by this state machine,

> > > which

sci.math: Re: The state machine of no input

> > > *takes no input. The question says that I should treat the state machine*
> *as a*
> > > *DFA. But the state machine takes no input and each state transition is*
> > > *triggered by nothing i.e. they are triggered by the empty string. Now*
> *as*
> *far*
> > > *as I can figure out, and I am only a wannabe of computer science, then*
> *the*
> > > *only language accepted by a state machine taking no input must be the*
> *empty*
> > > *string and then only if the starting state is an accepting state.*
> >
> > *How did your textbook define what it means for an automaton to*
> *acknowledge*
> > *that an input string is in the language?*
> >
> > *Is it "a string S is in language L defined by automaton A if and only*
> > *if A halts in an accept state on input S"?*
> >
> > *Or is it, perhaps "a string S is in language L defined by automaton A if*
> > *and only if A halts on input S"?*
> >
> > *Either way, I'd say that the language L defined by an automaton A that*
> > *takes no input is either is either all strings or no strings.*
> >
> > *If you layer on the requirement that the automaton actually read*
> > *the entire input then the language L consists of either the*
> > *set containing the empty string or the empty set depending on whether*
> > *the machine accepts or rejects the empty input.*
> >
> > *None of this is substantive. It's all an artifact of details in*
> > *definitions. Much like the question of whether 0 is a natural*
> > *number, in the end it doesn't really change anything.*
> >
> > *John Briggs*
>
> *Hi John*
>
> *Thank you for replying... :-)*
>
> *My textbook is "Introduction to Automata Theory, Languages, and*
> *Computation"*
> *by Hopcroft et al. and the problem is about regular languages, so the*
> *language L is only accepted if the automaton A halts on input S.*

I meant halts in an accepting state (sorry)

> *In my problem the automaton is initiated in a state, and the clock from*
> *then on*
> *drives each state transition. Whether or not the automaton can enter an*

Re: The state machine of no input

sci.math: Re: The state machine of no input

- > *accepting state depends upon which state is chosen as the initial state.*
- > *Each state transition is well defined but initiated by the clock, but I*
- > *cannot let a clock be an alphabet or can I? I have to prove whether a*
state
- > *is reachable or not. I believe I can do that, but I am having a problem*
- > *figuring out for which alphabet this is done? Maybe it is as you say all*
- > *strings (can enter an accepting state) or no strings (well never reach an*
- > *accepting state), but the clock drives each state transition? Maybe the*
- > *clock can be an alphabet; maybe it is just a matter of abstraction? This*
is
- > *really the land of dark magic .*
- >
- > *Kind regards*
- > *The Danish WannaBe of Computer Science*
- > *Mark*
- >
- >