



CS5127/6027: Requirements Engineering (Fall 2024)

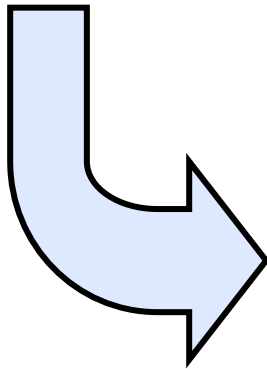
Prof. Nan Niu (nan.niu@uc.edu)

Office Hours: 10am-11am, Mondays, Rhodes 832

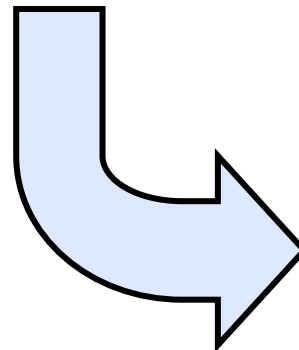


Today's Menu

Last Lecture (Monday 10/28):
Req.s-Based Testing



This Lecture (Friday 11/1):
Releasing ASN3

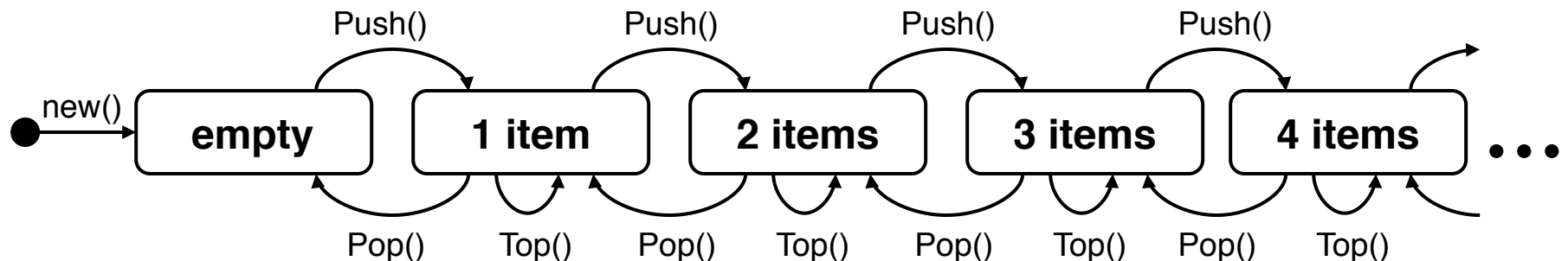


Next Lecture (Monday 11/4):
Req.s Negotiation

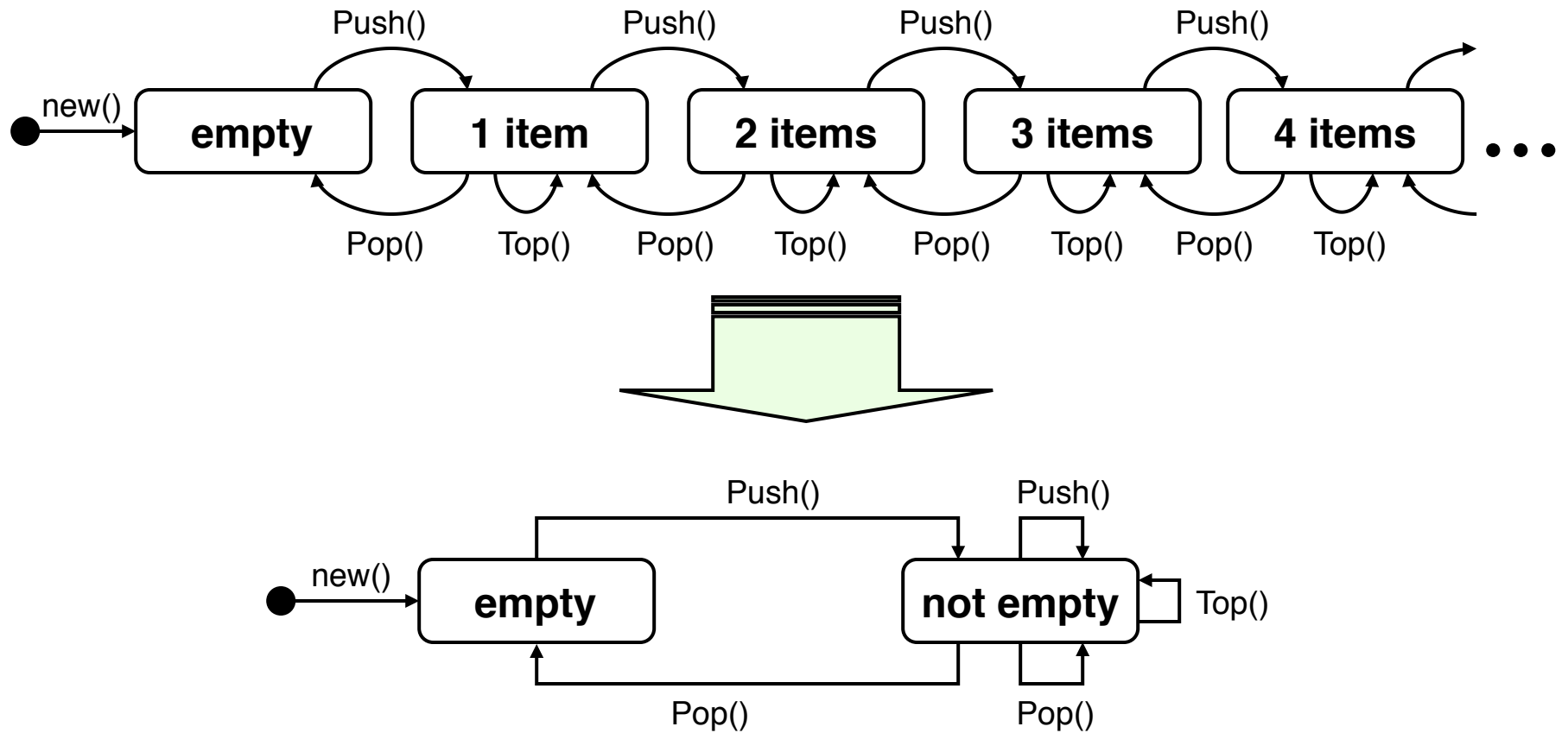
Req.s-based testing often exploits a model to define logical test cases

→ To make the model explicit = make it a **graph** so that we (humans) can visualize it & can define test cases (TCs) systematically

→ An essential skill in modeling is _____



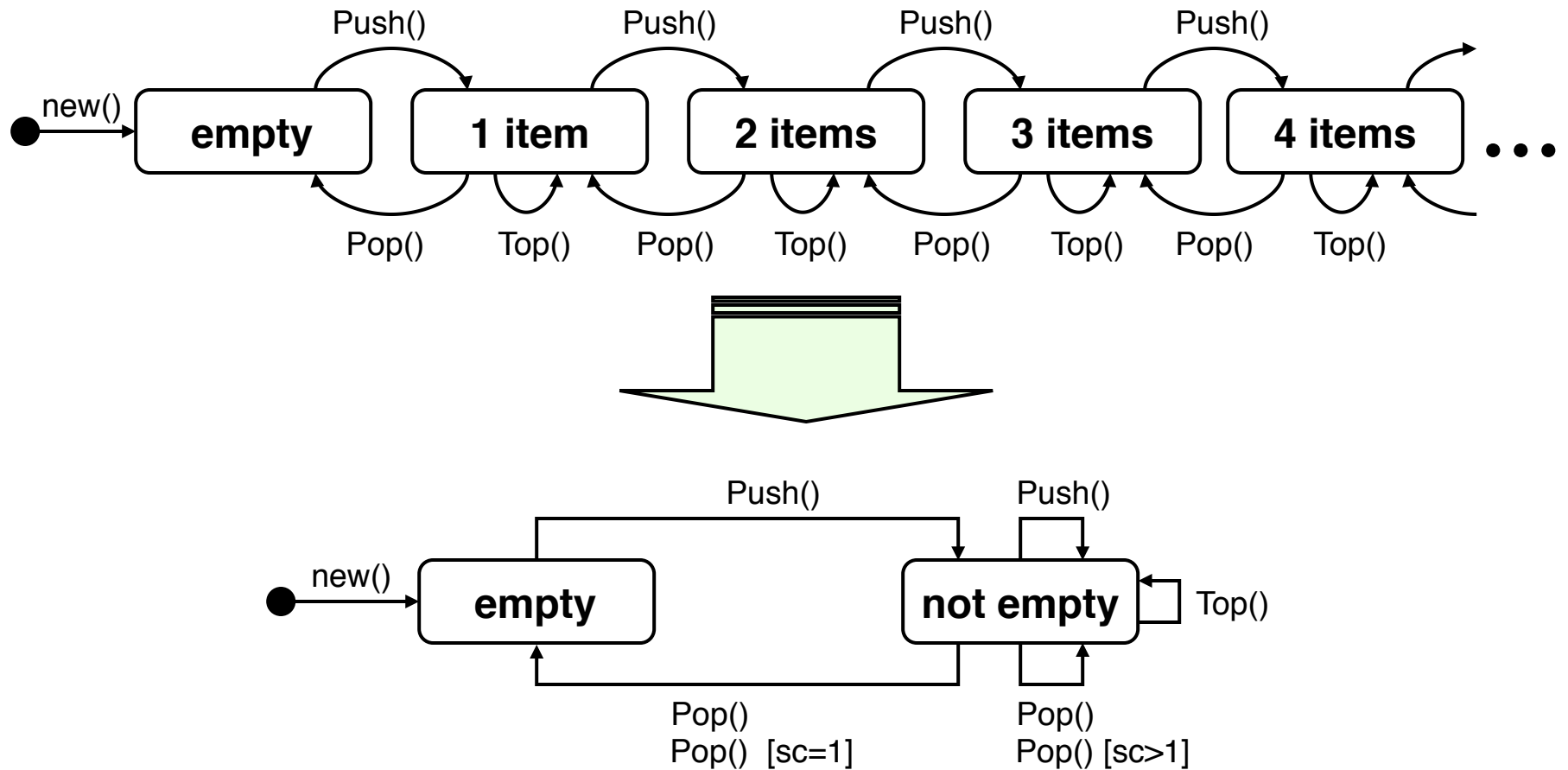
Abstraction



✎ The abstraction usually permits more traces

- E.g. this model does not prevent traces with more pops than pushes
- But it still says something useful

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Let's do req.s-based testing

Use Case: Schedule Appointments

Sub-flows:

- [S1] The system shall enable the administrator to add a new entry for an appointment type, including its type, name with up to 30 alpha characters and duration in the unit of minutes [E1].
- [S2] The LHCP (licensed health care professional) schedules an appointment with a patient, and enters comment (optional) up to 1000 characters such as reason for the appointment [E2].
- [S3] The patient selects an LHCP from his or her provider list. The patient selects the type of appointment, enters the appointment date and start time. If the requested appointment time does not conflict with any existing appointment for the LHCP, the request is saved. If the requested appointment time does conflict with an existing appointment, the patient is presented with a list of the three next non-overlapping available appointment times within 7 days of the requested date. The patient selects one of these appointments and the request is saved.

Alternative Flows:

- [E1] The user inputs invalid information and is prompted to try again.
 - [E2] The comment is empty and the text “No Comment” (without link) is displayed instead of the “Read Comment” link.
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Req.s-based testing → Model-based testing

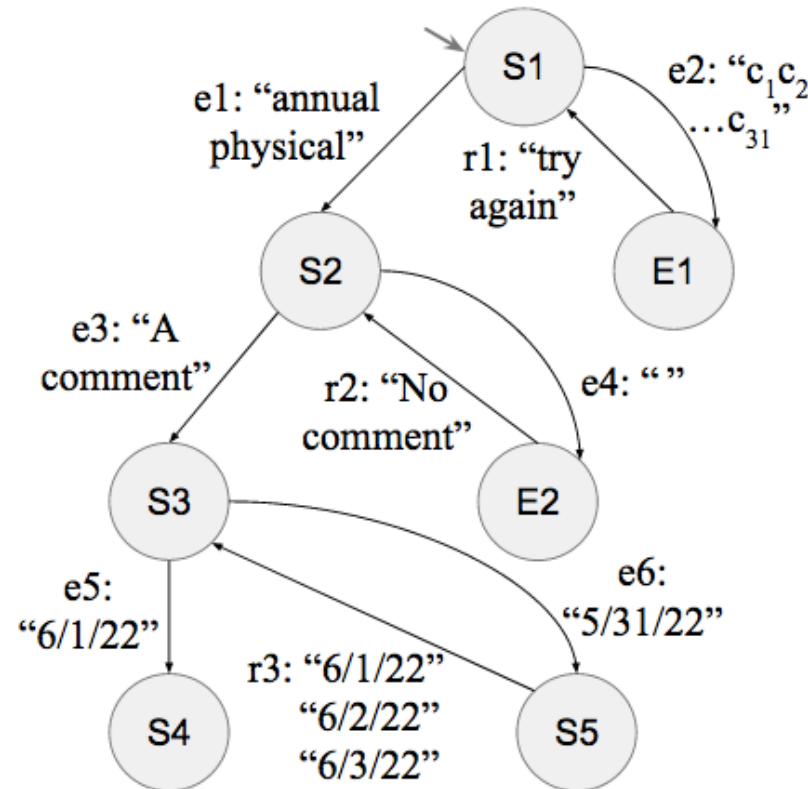


Fig. 10 Modeling iTrust's Schedule Appointments use case (cf. Fig. 3) with a finite state machine in which the additional states "S4" and "S5" represent "request is saved" and "time conflict is detected" respectively. The transition is labeled with "e" (user-entered input) or "r" (system-generated response)

With the above model, TCs can now be defined

TC1: $S1 \rightarrow e1 \rightarrow S2 \rightarrow e5 \rightarrow S4$ (also define "expected outcome")

TC2: $S1 \rightarrow e2 \rightarrow E1 \rightarrow r1 \rightarrow S2 \rightarrow e3 \rightarrow S3 \rightarrow e5 \rightarrow S4$ (also define "expected outcome")

TC3: $S1 \rightarrow e1 \rightarrow S2 \rightarrow e4 \rightarrow E2 \rightarrow r2 \rightarrow S2 \rightarrow e3 \rightarrow S3 \rightarrow e6 \rightarrow S5 \rightarrow r3 \rightarrow S3 \rightarrow e5 \rightarrow S4$ (also define "expected outcome")
... (more TCs)

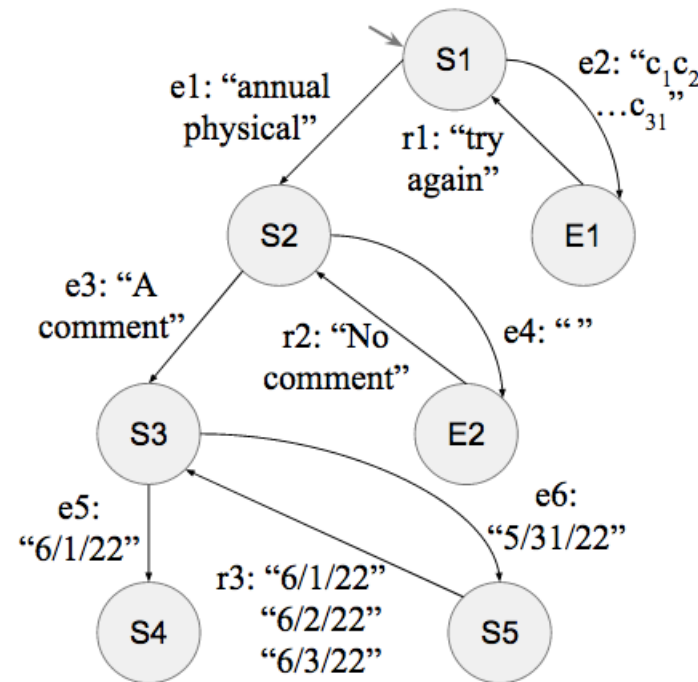


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ASN3

- Due by 11:59pm, Wednesday (Nov 20)
- Individual work
- Each student is assigned to work on **THREE** requirements
 - ↳ TA (Anjali) sends you an email on Friday (Nov 1), 8am-12pm (noon). You shall keep yours only to yourself. If you do NOT receive your **THREE** requirements after 12pm (noon) on Friday (Nov 1), then please contact the TA (gollaai@mail.uc.edu) and the instructor (nan.niu@uc.edu).



Today's Take-Aways

→ ASN3 released

↳ What? When?

→ To-do

↳ Review today's slides

↳ Begin doing ASN3: due Wednesday (Nov 20)

↳ Attend next Monday's class (Nov 4) on "req.s negotiation"