FOL II: universal intro

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Intro to Logic
2/23/2023

Logic-&-AI In The News

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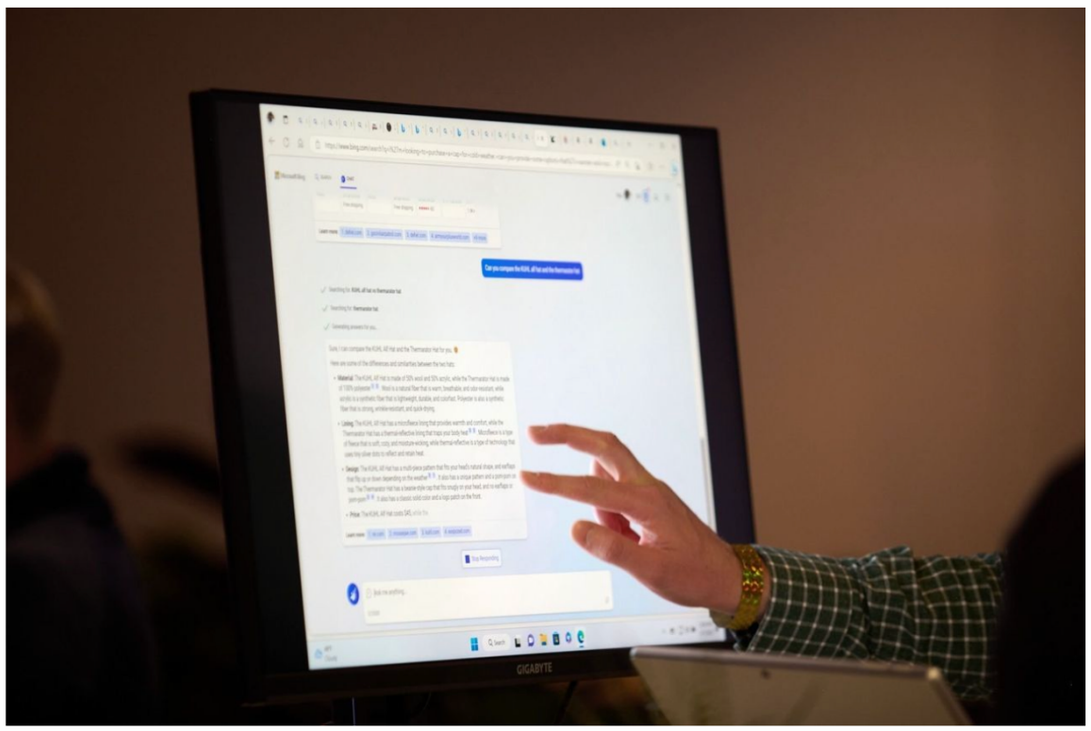
The George Santos AI Chatbots

Too many information sources already read our minds and give us what we want.

BUSINESS WORLD ✓ Following

By Holman W. Jenkins, Jr. + Follow

February 21, 2023 06:03 p.m. EST



An attendee interacts with the AI-powered Bing search engine during an event in Redmond, Wash., Feb. 7.

No matter the question, the answer is bound to be interesting whether correct, incorrect or totally off the wall. Are we speaking of George Santos or ChatGPT? Yes.

If the great march of liberalism is to liberate us from reality altogether, as the political philosopher Bruno Maçães theorizes, the metaverse won't be for real interaction with real people. It will be an artificial reality whose nature ChatGPT, the new chat function associated with Microsoft's Bing search engine, is bringing into focus.

In the familiar metaverse called "news," a Washington Post reporter last week warned about a gotcha game that questioners were playing with chatbots. Along came a New York Times reporter to prove his point: Don't ask a chatbot for a list of antisocial activities on the internet. Ask for a list of activities a chatbot might perform if it were an antisocial chatbot. The answer will be identical except prefaced with words to the effect "I as a chatbot would do this . . ."

The furor consumed cable news for a morning and yet illustrated mainly the gotcha function that long ago turned every politician into a scripted automaton. Playing this trick on a robot doesn't seem brave but does expose a risk in the environment the robots are entering. Now Microsoft will have to re-engineer its Bing chat mode to beware of journalist tricks. The company rightly points to the relentless prompting of hypotheticals to get a robot to say how it would behave if its programming were different. On Bing's more neurotic outpourings, the company is less convincing and attributes the confusion to overlong sessions—an answer that leaves much to be explained and also isn't very flattering about similar human derangements that thinkers over the years have associated with creativity and originality.

In the end, the cacophony tells us less about Bing than about the metaverse known as fake or at least semi-manufactured news. Welcome to the George Santos metaverse. Shaping it will be the two forces that reshaped cable news in the past decade. The first is "availability bias": Claims are advanced because they are familiar and fulfill an existing narrative. Chatbots derive their answers precisely from the statistical likelihood that words have already appeared near each other in large text libraries.

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The second is the psychological function known as "splitting"—making sure our perceived world is emotionally supportive of our pre-existing beliefs and affiliations. A chatbot isn't a business, after all, unless its answers please.

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The lack of trenchant and inspired editors is a disease already afflicting traditional media. It's also an essential flaw of our new-media metaverses. On Substack, the sometimes useful Yale historian Timothy Snyder, a supporter of Ukraine, lately descended into a rabbit hole of anti-Trump theorizing, due to too much exposure to the discount-rack fallacies of author Craig Unger. Mr. Snyder's friends in Kyiv may need to stage an intervention. He's becoming a liability. From 4,600 miles away, they understand what he doesn't: The people who fight America's wars, staff its militaries, build its weapons, and vote in its elections are, a lot of them, Trump voters.

Metaverses spring up and go poof just as quickly. Vanishing already is one spun by Joe Biden, in which millions of diploma-toting voters were to be relieved of $400 billion in student debt. A George Santos-like scheme puffed up to win an election, the president doesn't have the authority to deliver. He never did.

Another revelation comes via the "Twitter files" controversy, exposing the federal government's enthusiastic embrace of disinformation in the name of fighting "disinformation." Answers have always been demanded from government; supplying them has always been a basic function. But as Rep. Santos understood before the rest of us, the only thing wrong with a false answer is that it's false. In every other way, it can be engineered to meet every need of the moment. Most disturbing about the new talkative robots is their potential to become the disinformation engineers par excellence.

In our lucky country, politicians sometimes have put creative energy into telling us what we need to hear, not what we want to hear. The U.S. needs to spend a lot more on defense, even at the expense of other things Americans might want. Our non-meta adversaries need to know we are not relying on ChatGPT to weave a cocoon of illusion to protect us from the wars they are planning.

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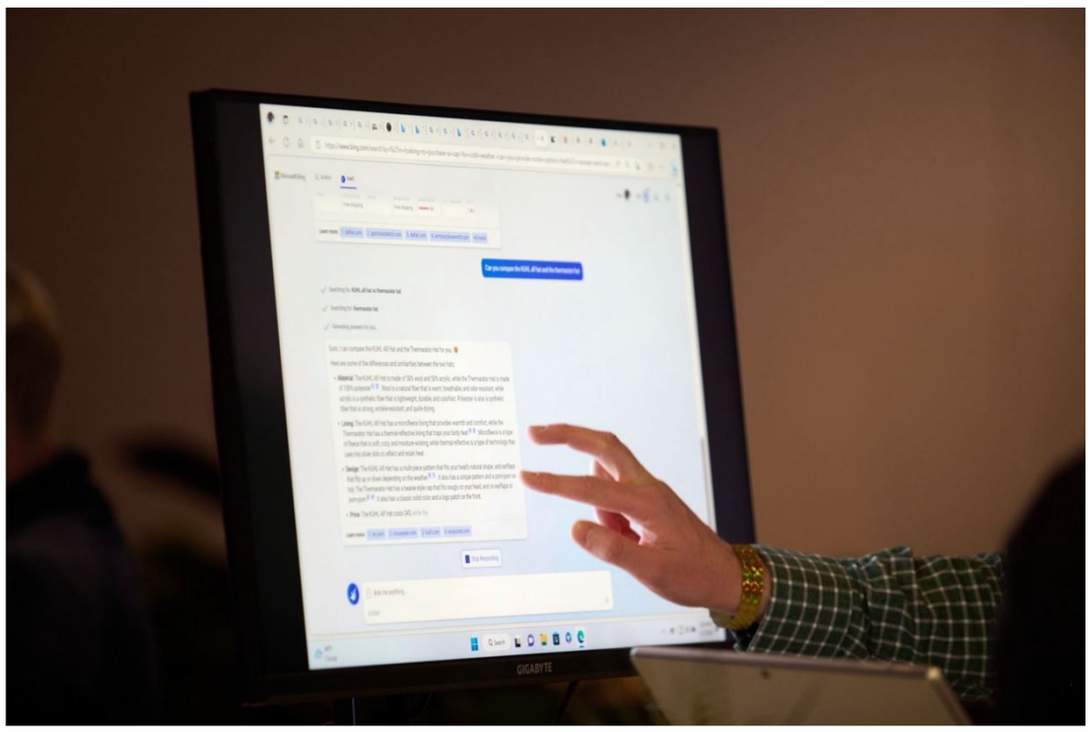

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Inclusive OR vs. exclusive OR?

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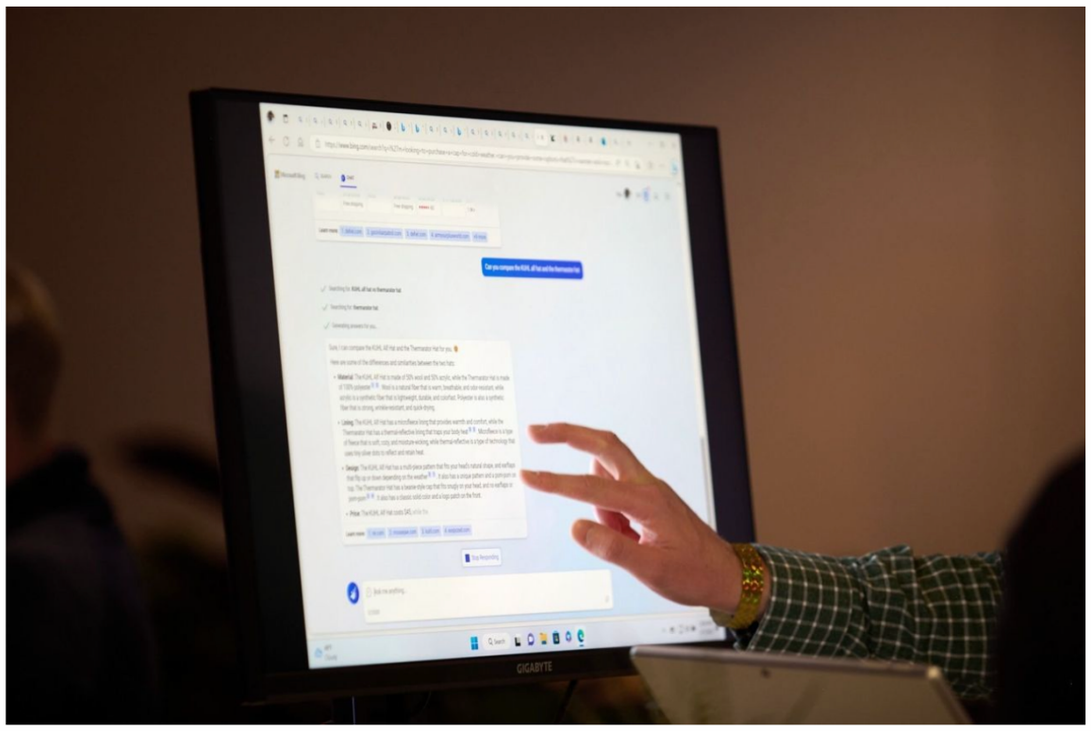

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Re Test 1 …

Grading Scheme

C: 1 $\mathscr{L}_{PC}$ + 1 $\mathscr{L}_0$

B: 2 $\mathscr{L}_{PC}$ + 1 $\mathscr{L}_0$

A: B + 1 more $\mathscr{L}_0$

A+: All

Grading Scheme

C: | $\mathscr{L}_{PC}$ + | $\mathscr{L}_0$

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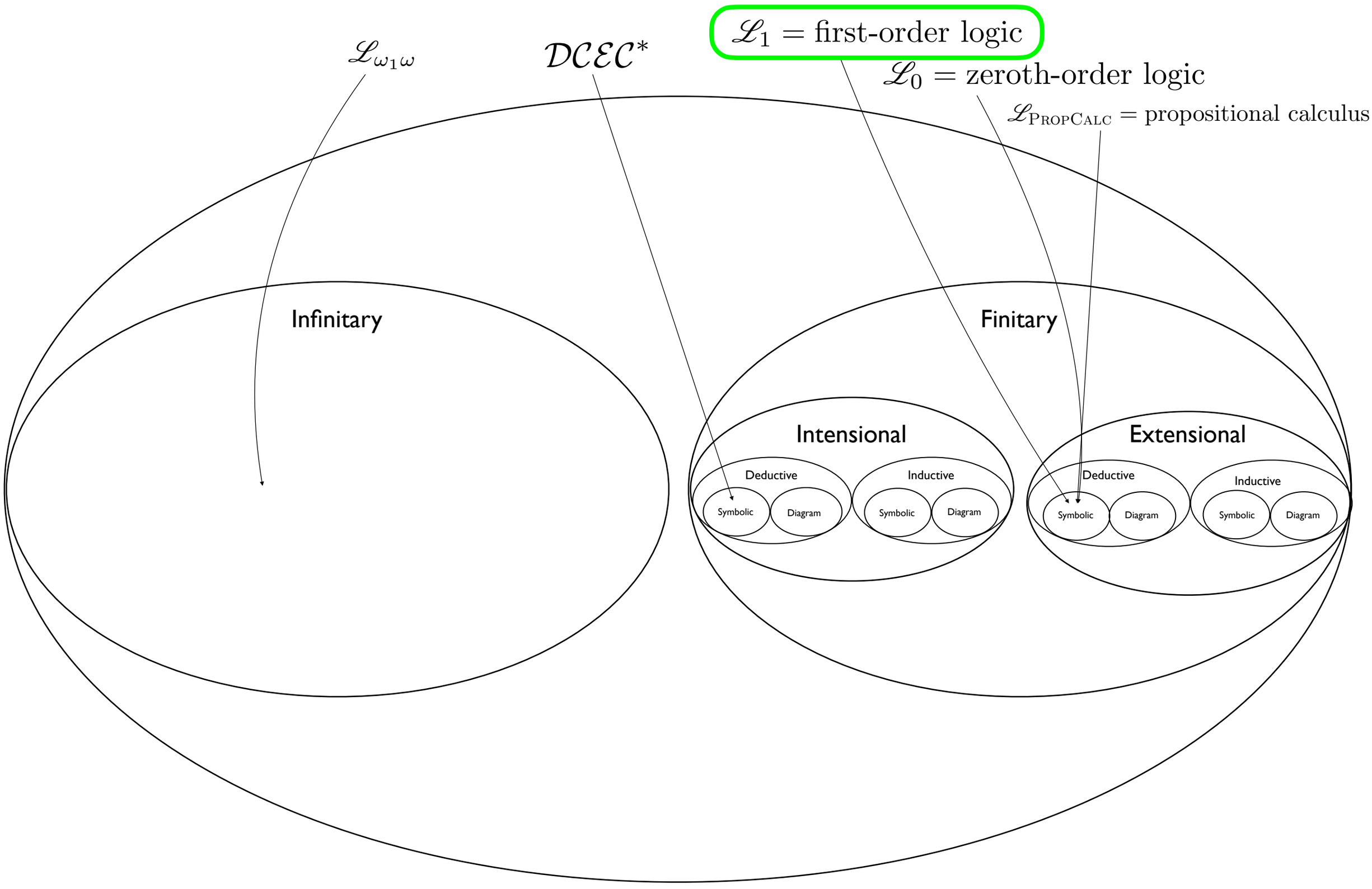
Extension; housekeeping pts; doing a proof live now …

The Universe of Logics



Next New (*Not*-So-Easy!) Inference Rule in FOL

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- `universal introduction`

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- `universal introduction`
  - If something *a* is an *R*, and the constant/name *a* is *genuinely arbitrary*, then we can deduce that everything is an *R*.

The Inference Schema

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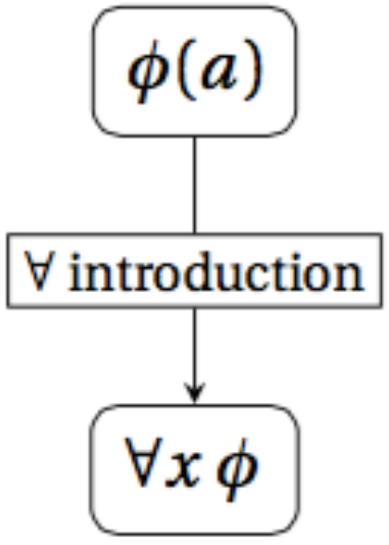
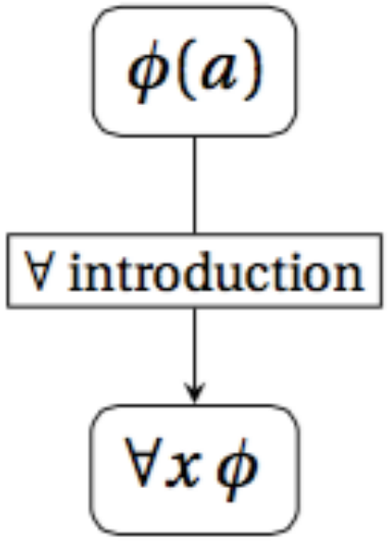


provided that a does not appear free in any in-scope assumption of ϕ, and that no occurrence of a appear in the inferred $\forall x\,\phi$ (3.16)

The Inference Schema



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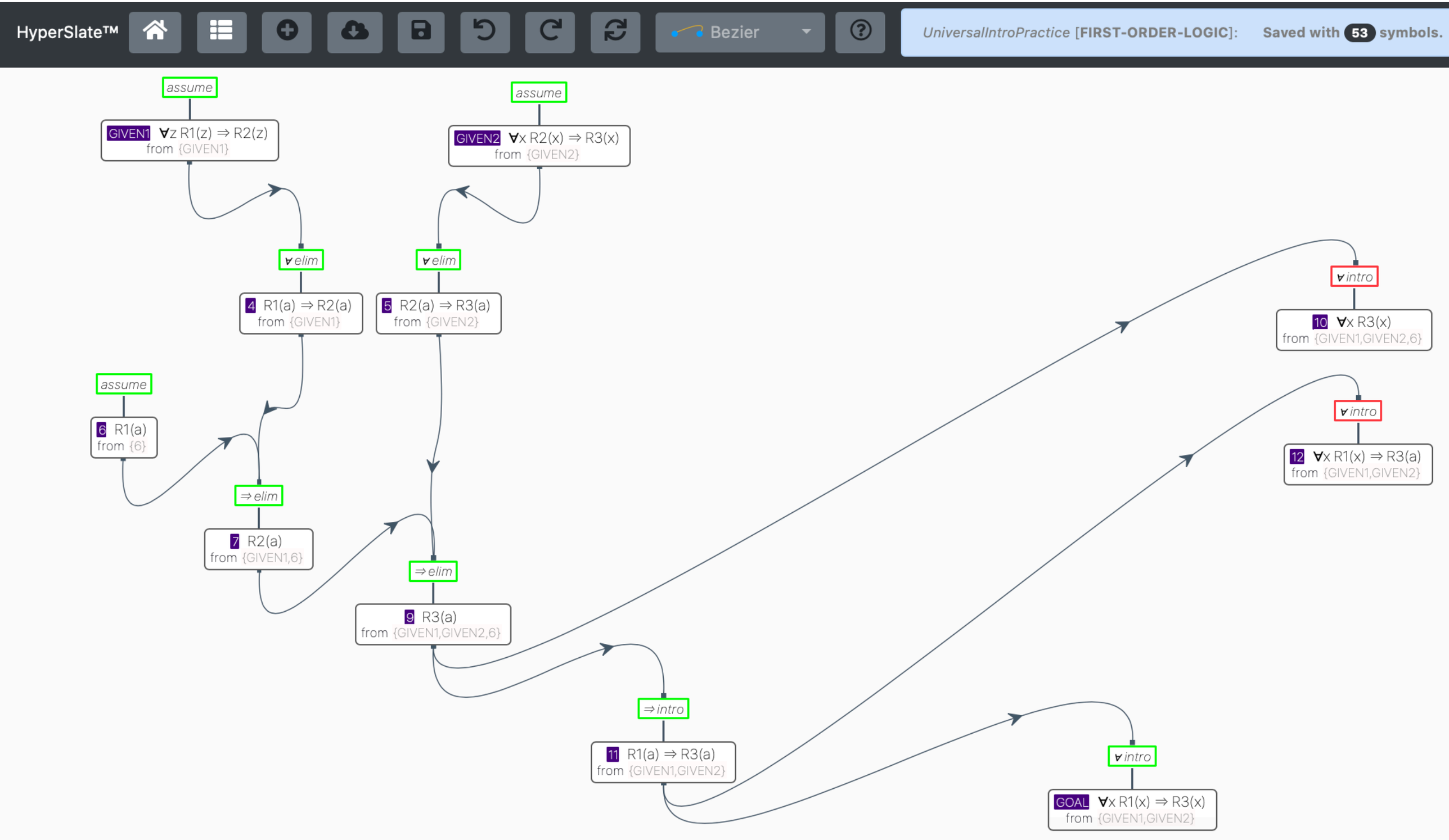
(Why the provisos?)

universal intro Example/Tutorial



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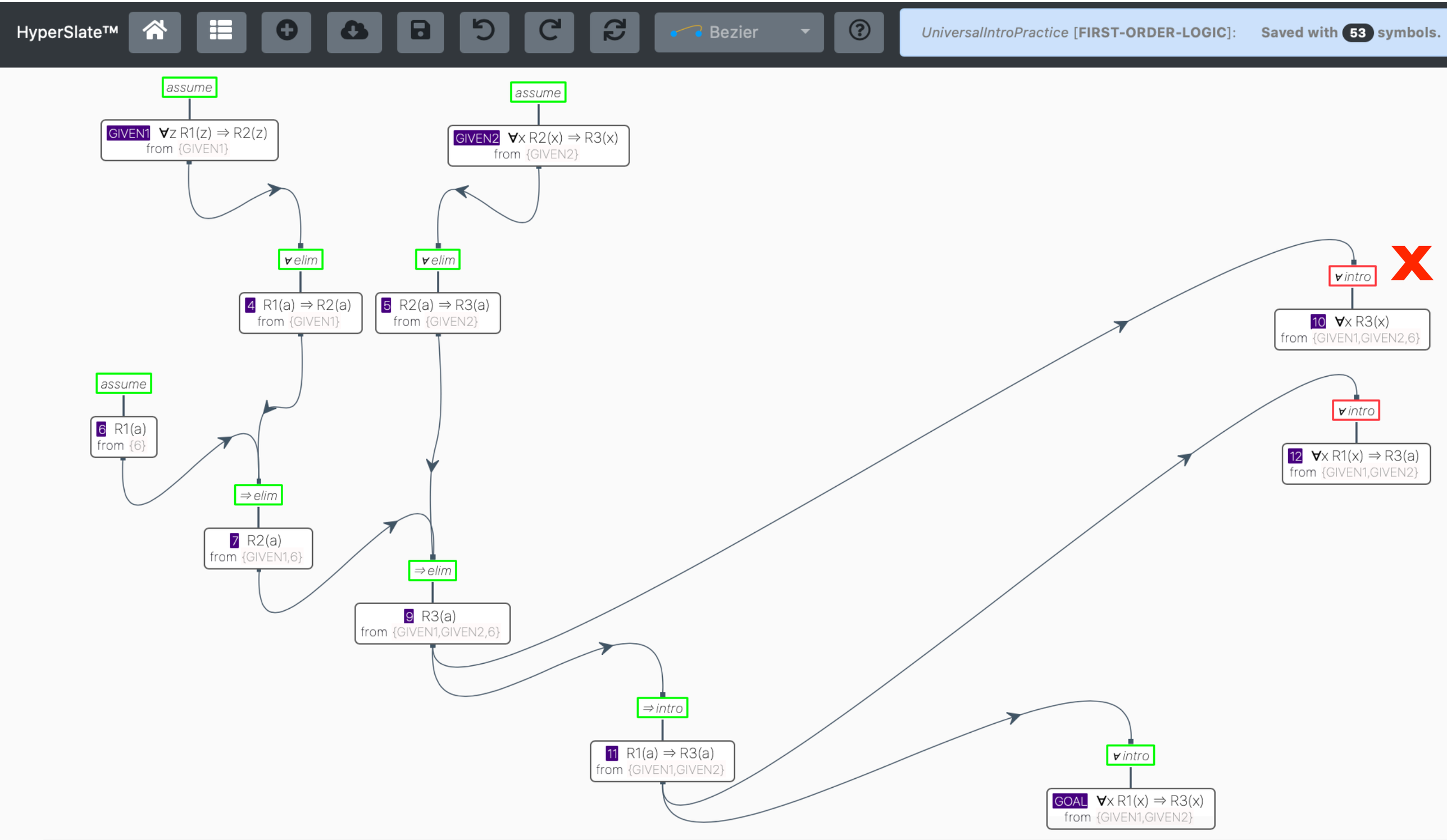

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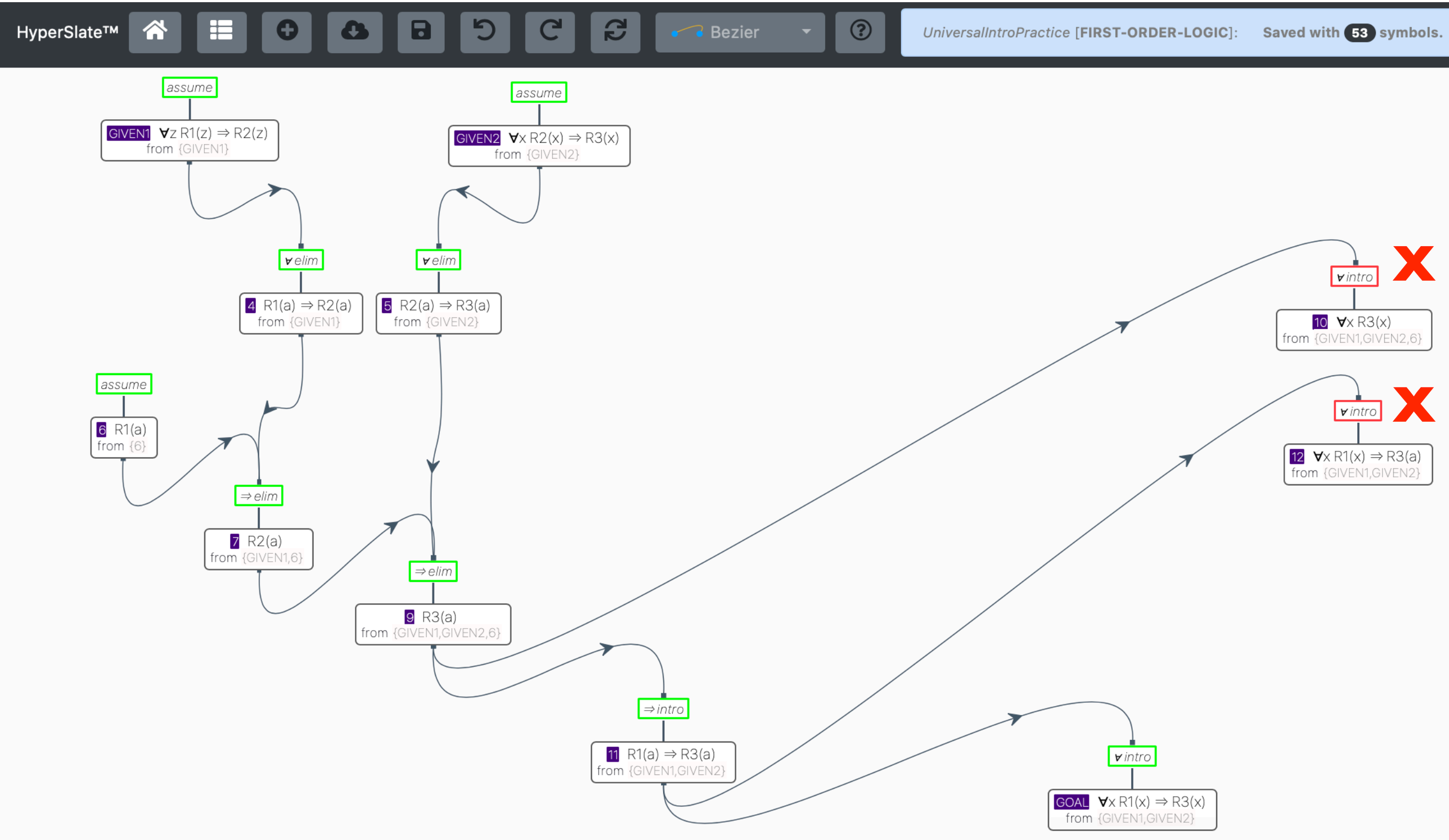

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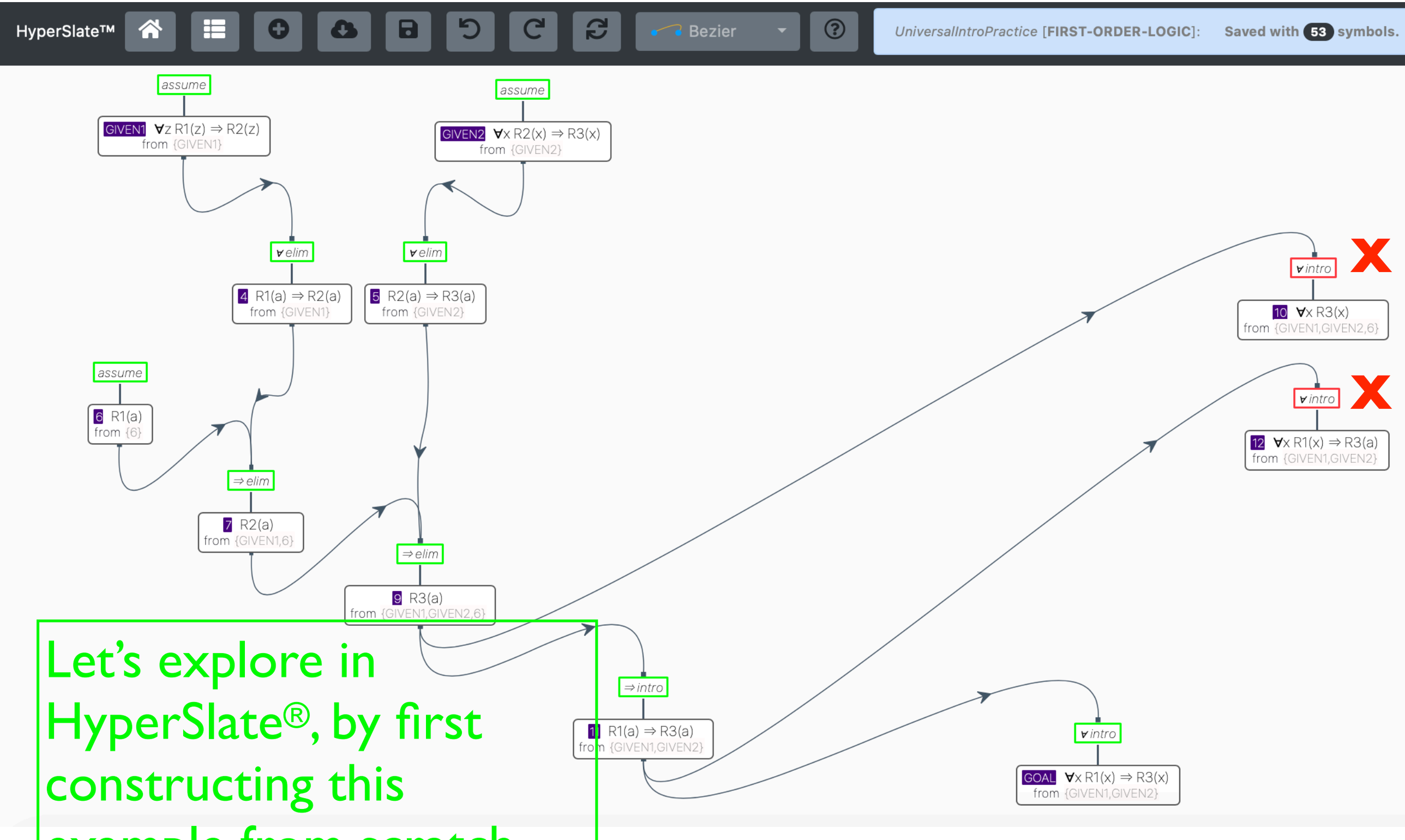
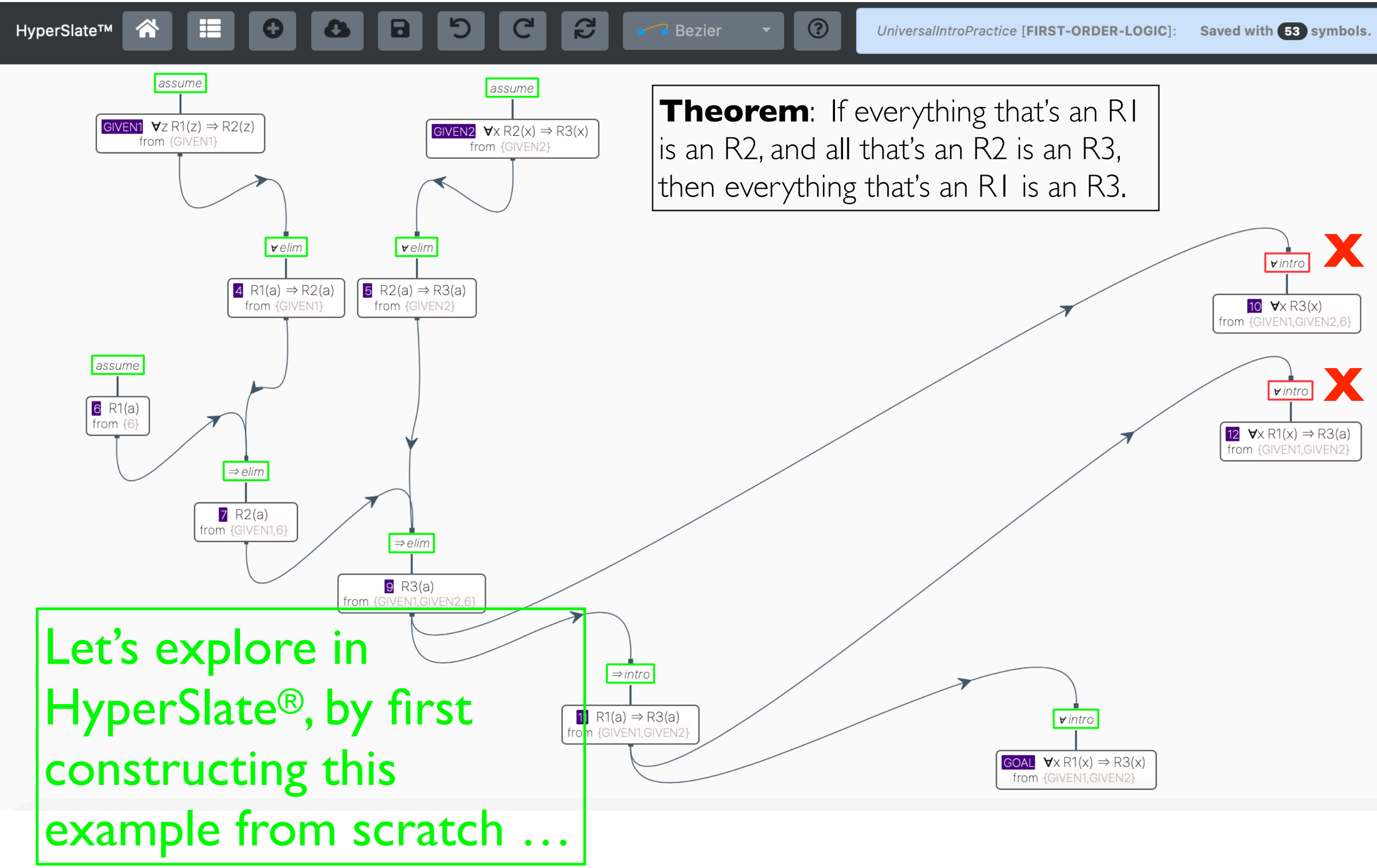


Let's explore in HyperSlate®, by first constructing this example from scratch …

universal intro Example/Tutorial



Theorem: If everything that's an R1 is an R2, and all that's an R2 is an R3, then everything that's an R1 is an R3.

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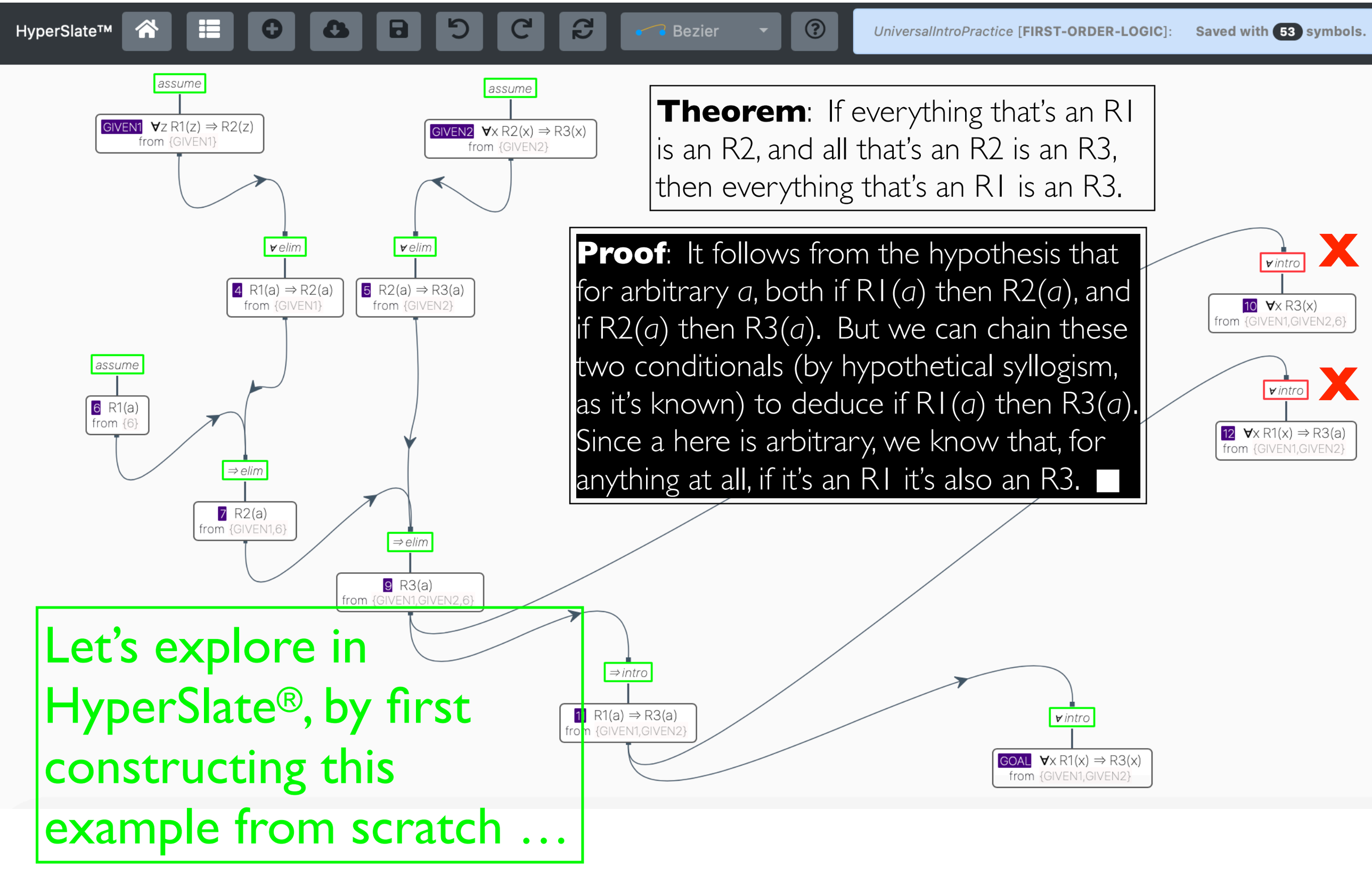

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Proof: It follows from the hypothesis that for arbitrary *a*, both if R1(*a*) then R2(*a*), and if R2(*a*) then R3(*a*). But we can chain these two conditionals (by hypothetical syllogism, as it's known) to deduce if R1(*a*) then R3(*a*). Since a here is arbitrary, we know that, for anything at all, if it's an R1 it's also an R3. ■

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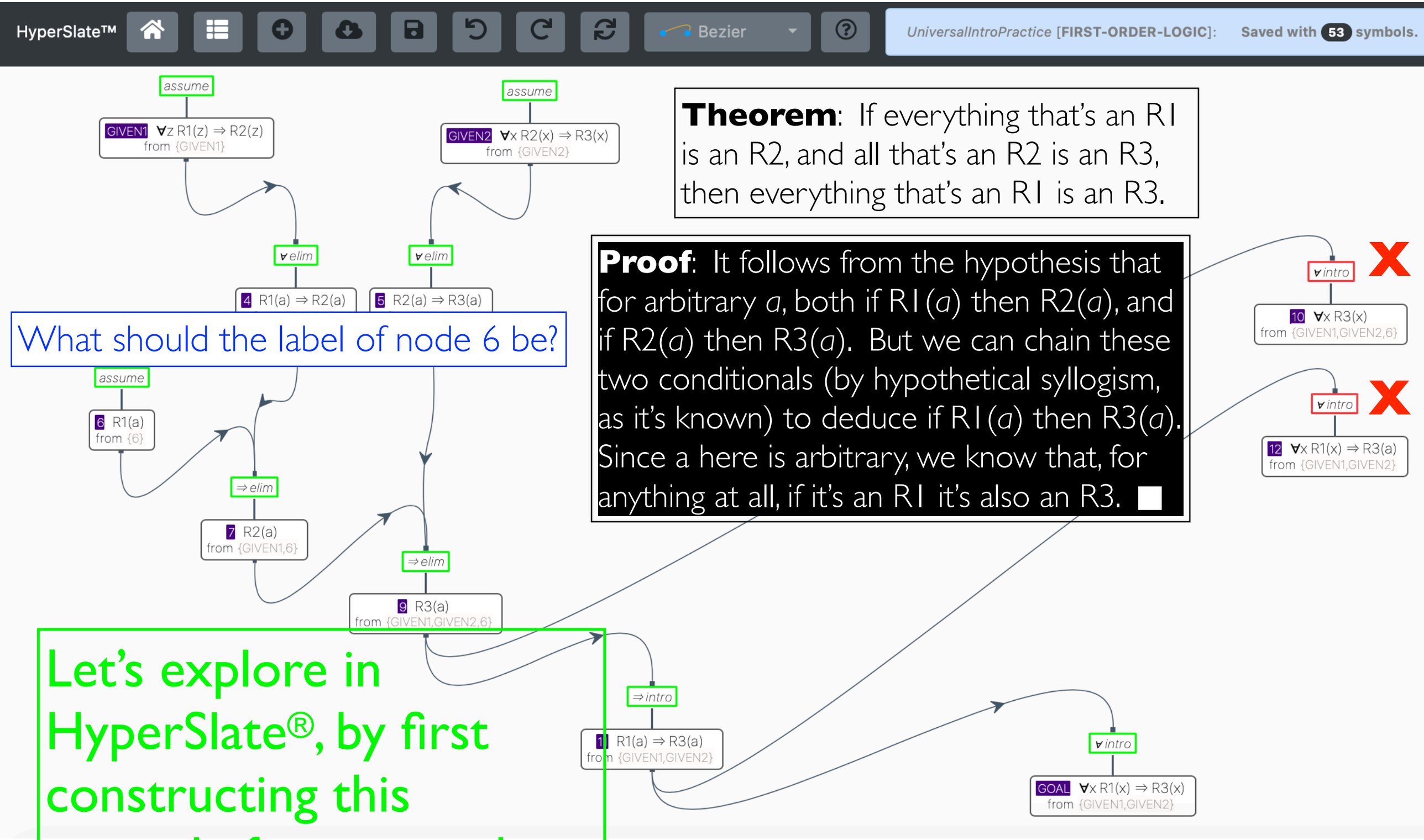

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Suggested Practice Problems in HyperSlate®!

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$$\{\forall \mathtt{x}(\mathtt{R}(\mathtt{x}) \leftrightarrow \mathtt{S}(\mathtt{x})), \forall \mathtt{x}\mathtt{R}(\mathtt{x})\} \vdash \forall \mathtt{x}\mathtt{S}(\mathtt{x})\} \textbf{ ?}$$

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Hvis du forstår det, kan du bevise det.