Building arguments with argumentation: The role of illocutionary force in computational models of argument

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D. O'Keefe.
Two concepts of argument.
Journal of the American Forensic Association, **13**:121–128, 1977

- argument$_1$ refers to an argument as a static object and is described by sentences such as "He prepared an argument"

- argument$_2$ refers to a dialogue or discussion and is described by sentences such as "they had an argument"

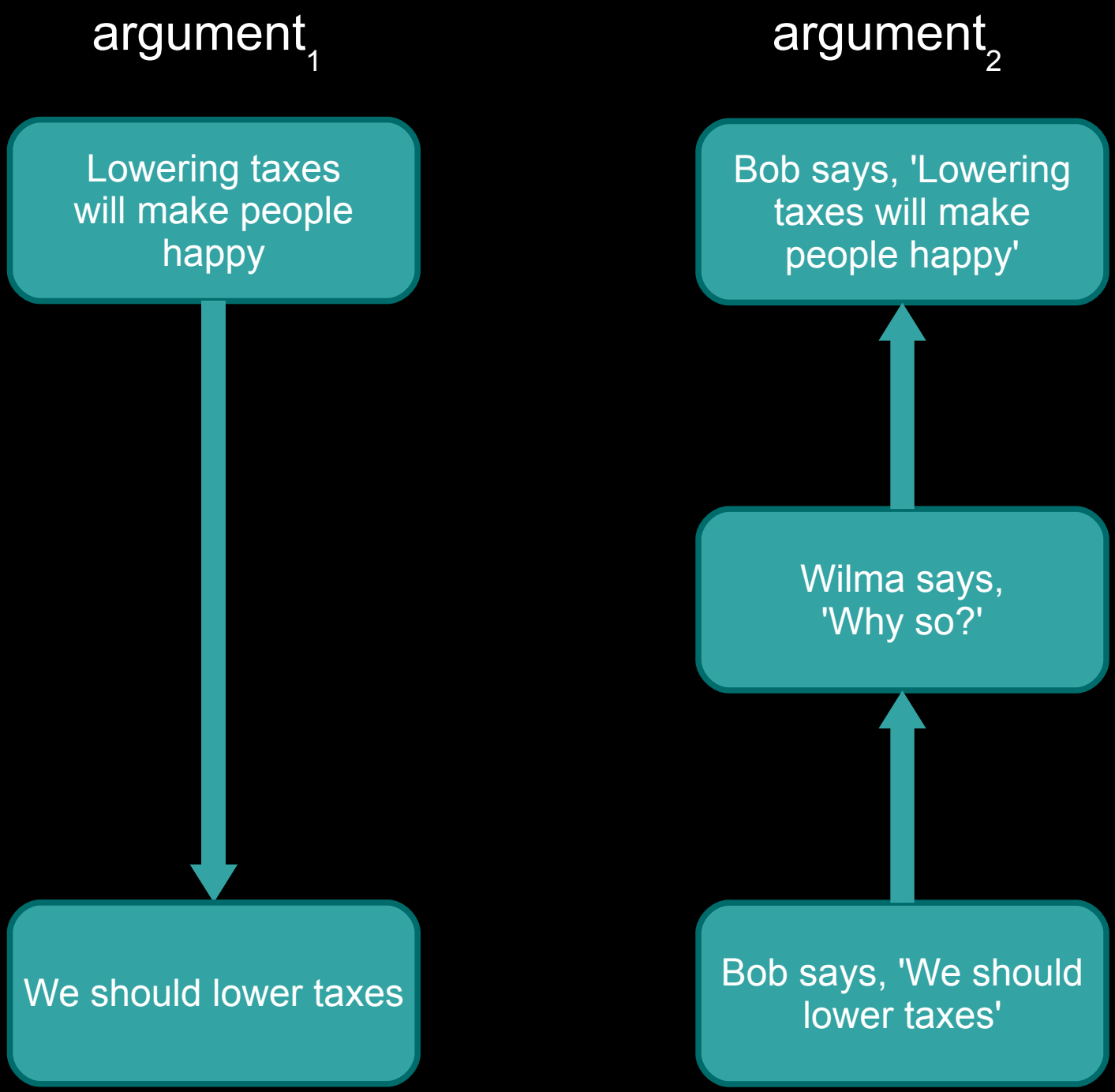
The Problem

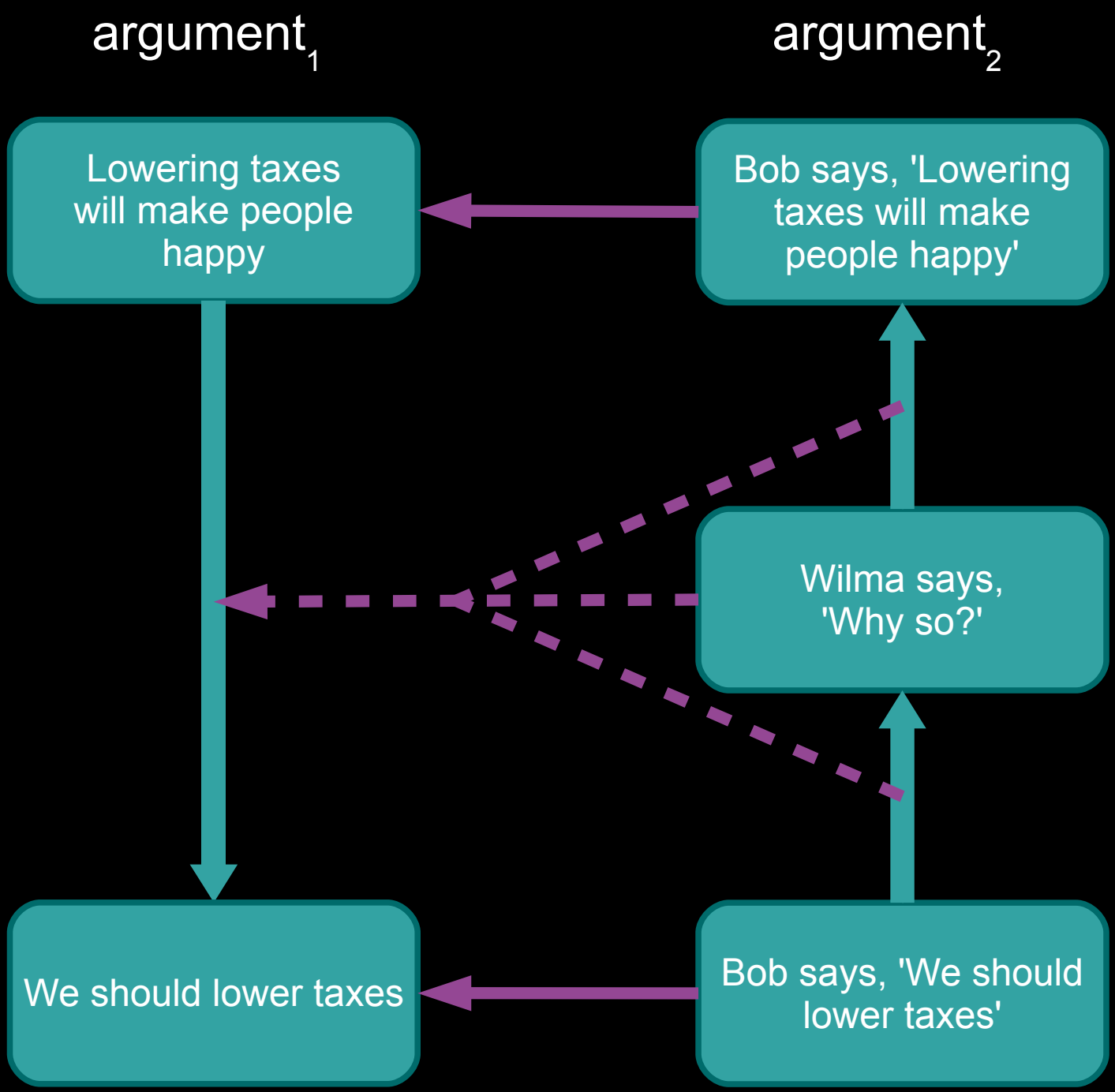
How do we understand the connection between linguistic activity in dialogues (arguments$_2$) and the inferential structures (arguments$_1$) that are created, manipulated, updated and navigated by it?

Bob: We should lower taxes.

Wilma: Really! Why so?

Bob: Well, because lowering taxes will make people happy.


argument1
Lowering taxes will make people happy
We should lower taxes
argument2
Bob says, 'Lowering taxes will make people happy'
Wilma says, 'Why so?'
Bob says, 'We should lower taxes'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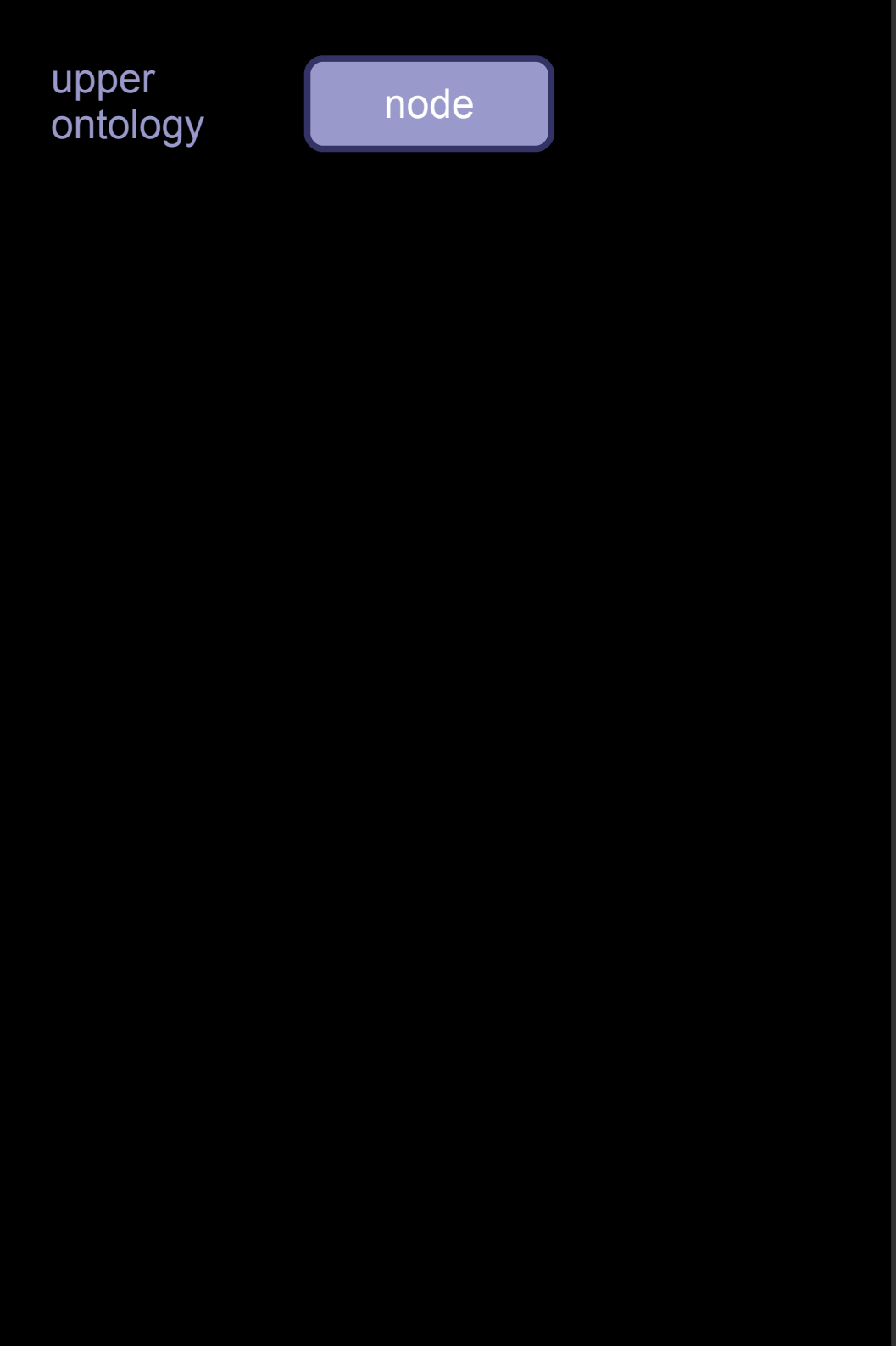
	Background	Types of Units	Main Relations
Argument$_1$	logic	propositions describing the world (in particular locutions)	- deductive rules e.g. Modus Ponens - argumentation schemes e.g. appeal to witness testimony - conflict schemes e.g. logical contradiction
Argument$_2$	dialectics	propositions describing locutions	- dialogue rules e.g. protocols for PPD$_0$
Interaction between arg$_1$ and arg$_2$	pragmatics	elements of arg$_1$ and arg$_2$	- illocutionary schemes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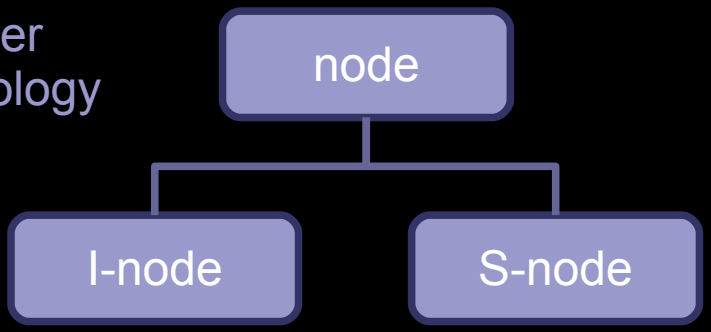
upper ontology



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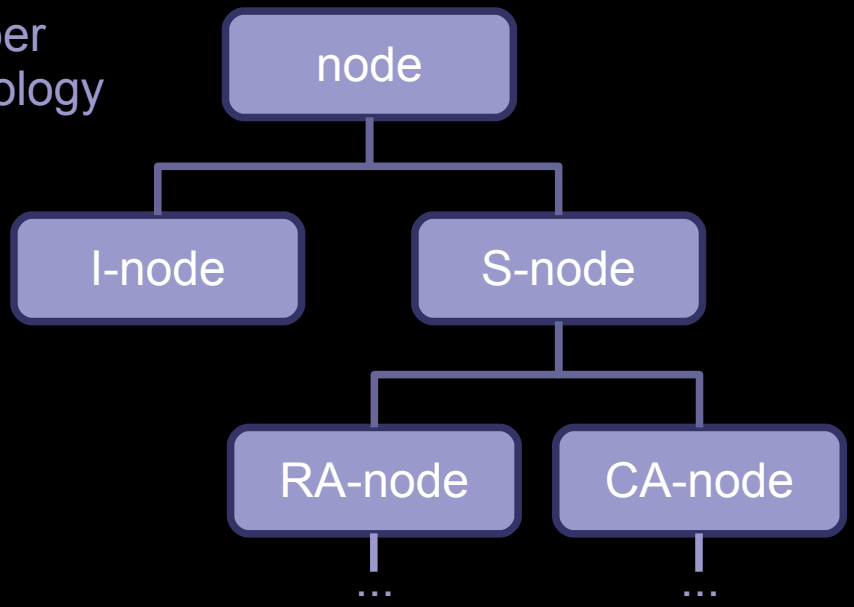

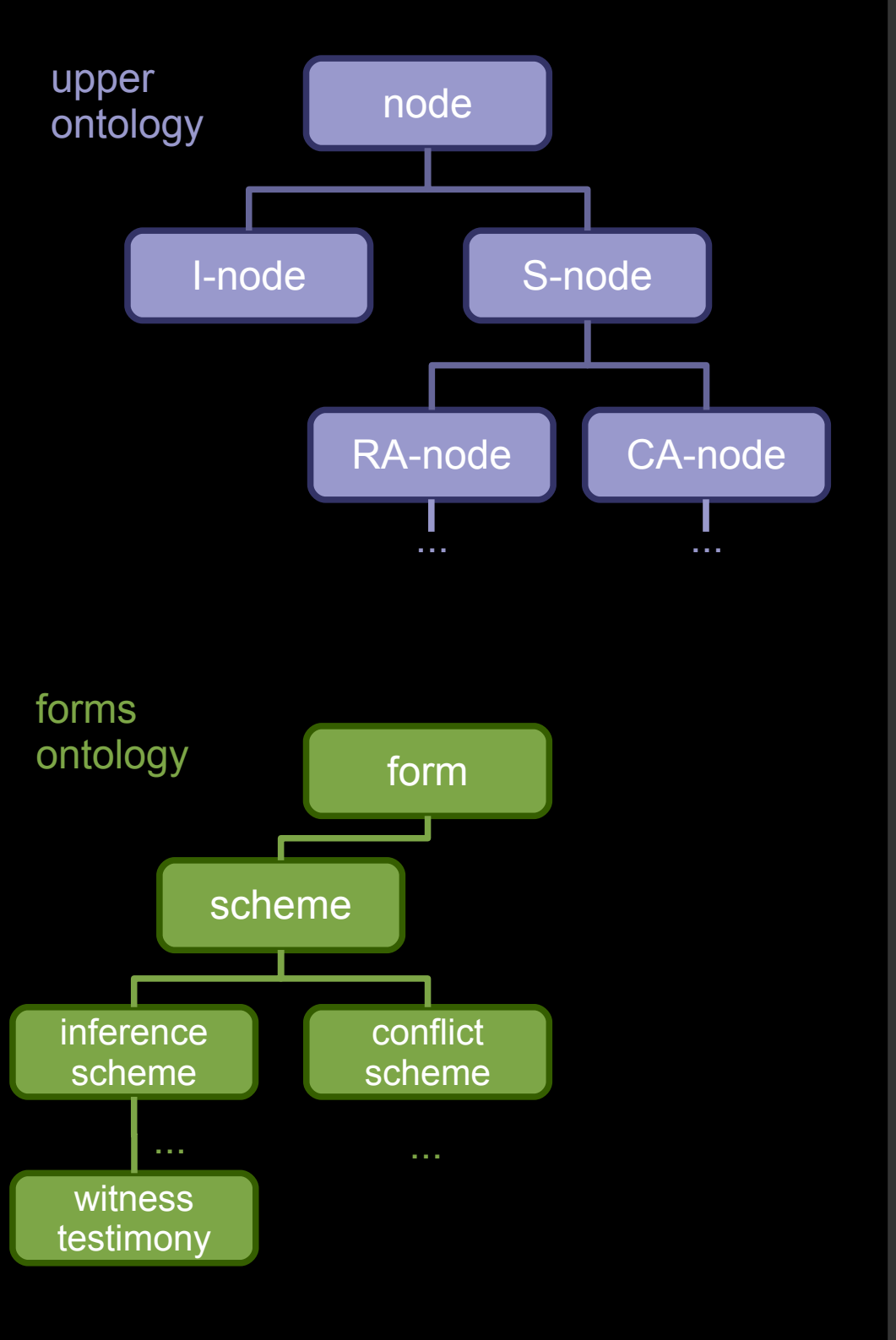
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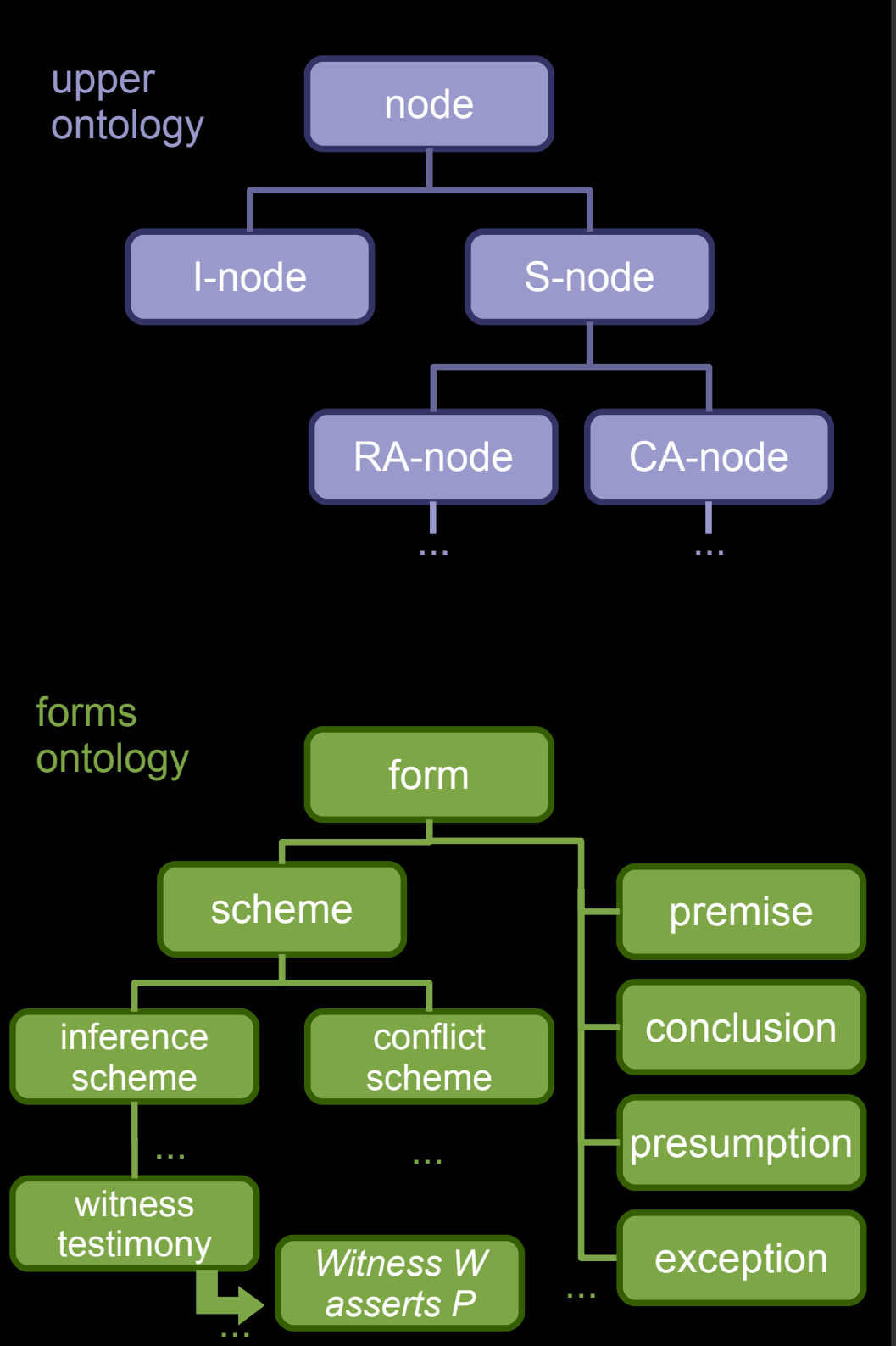
witness testimony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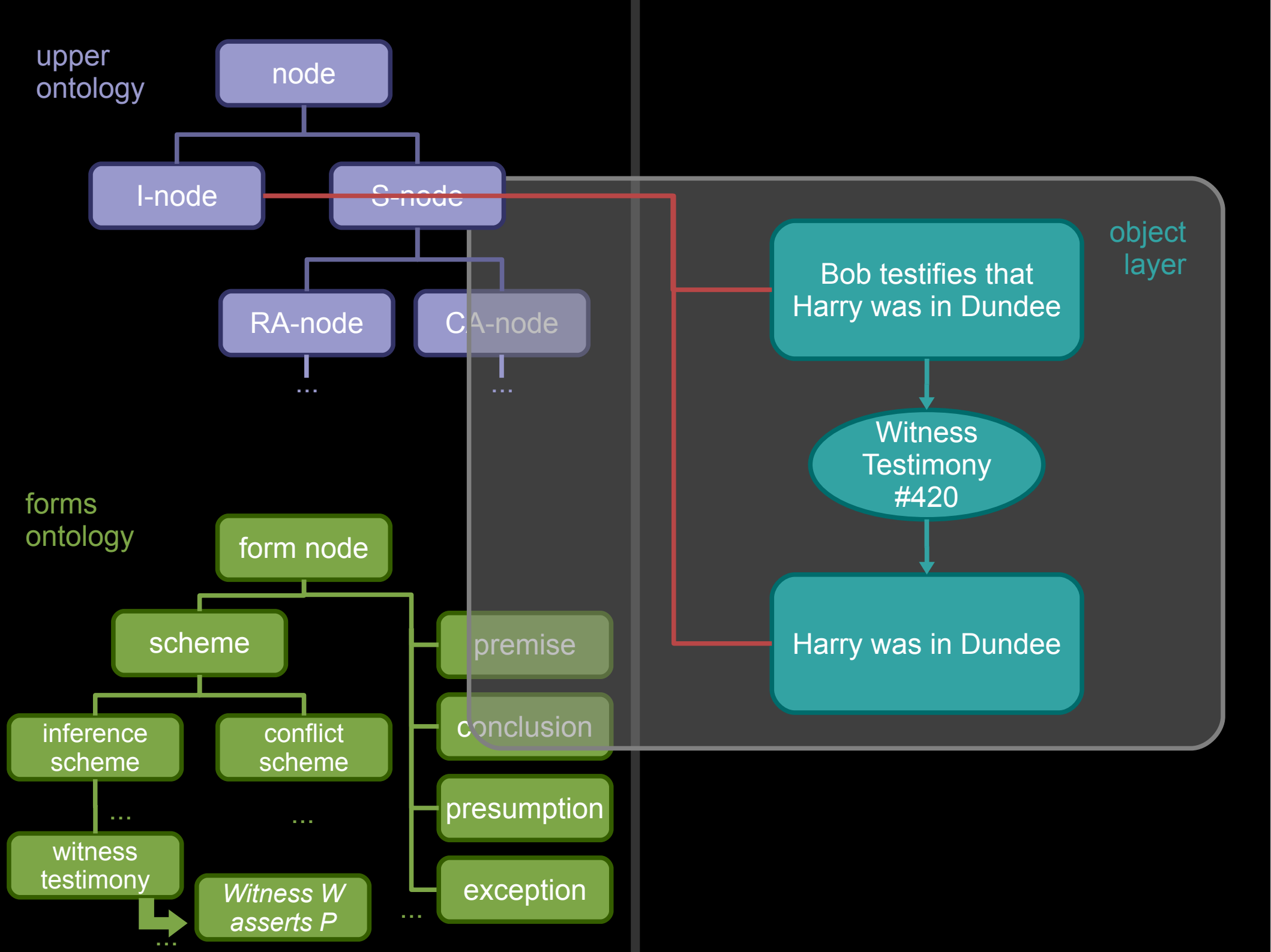
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Bob testifies that Harry was in Dundee
Witness Testimony #420
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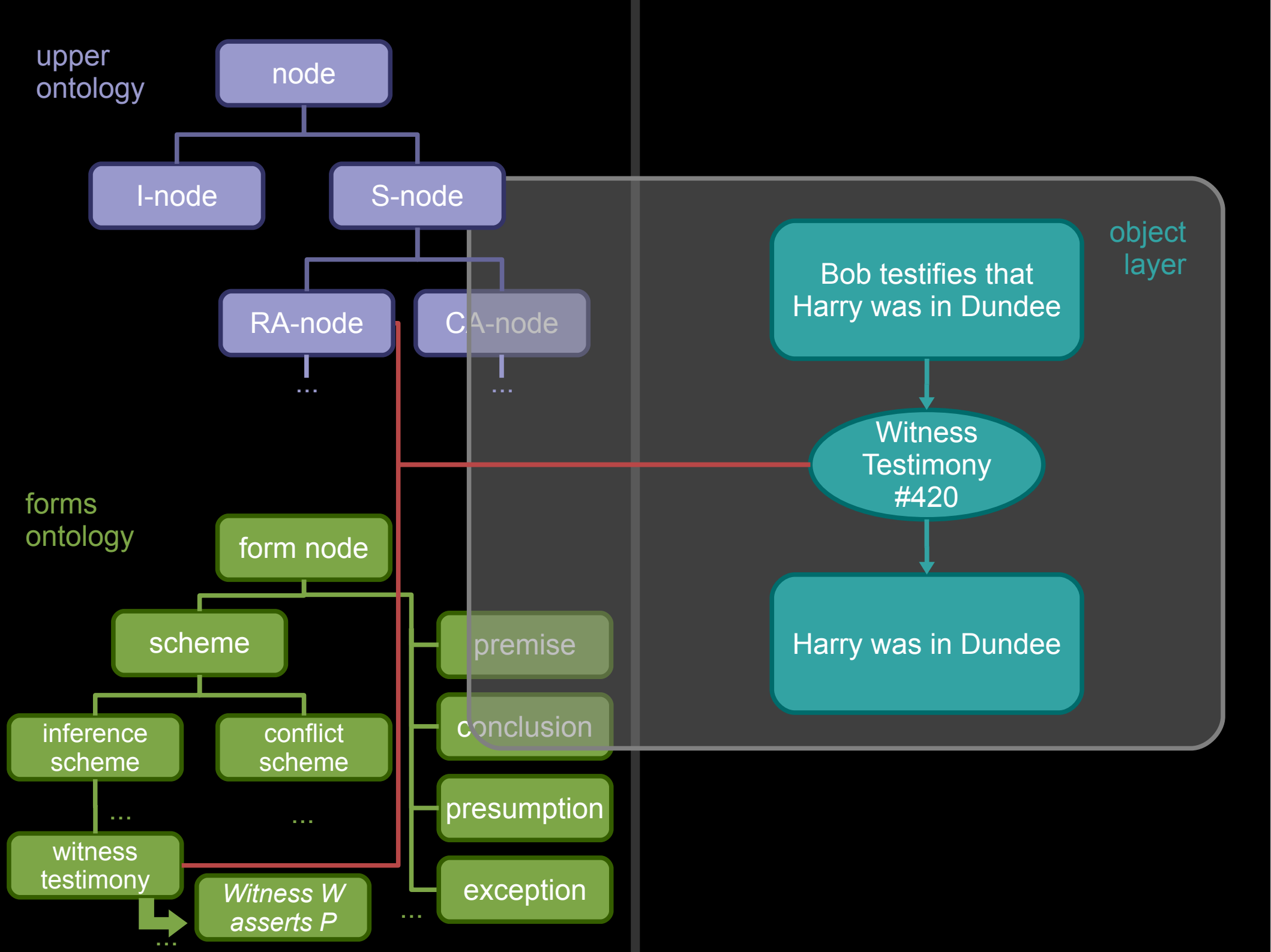
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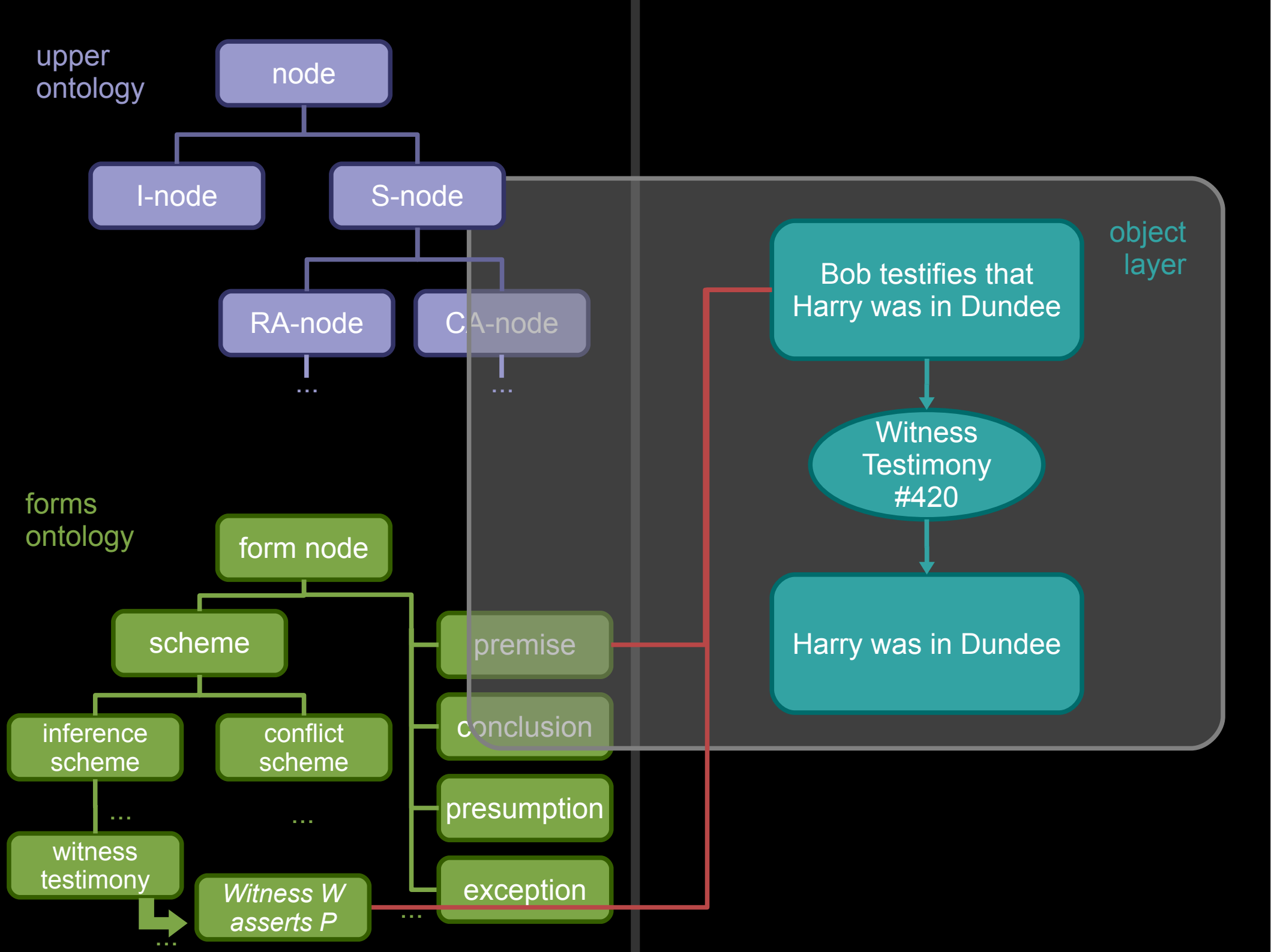
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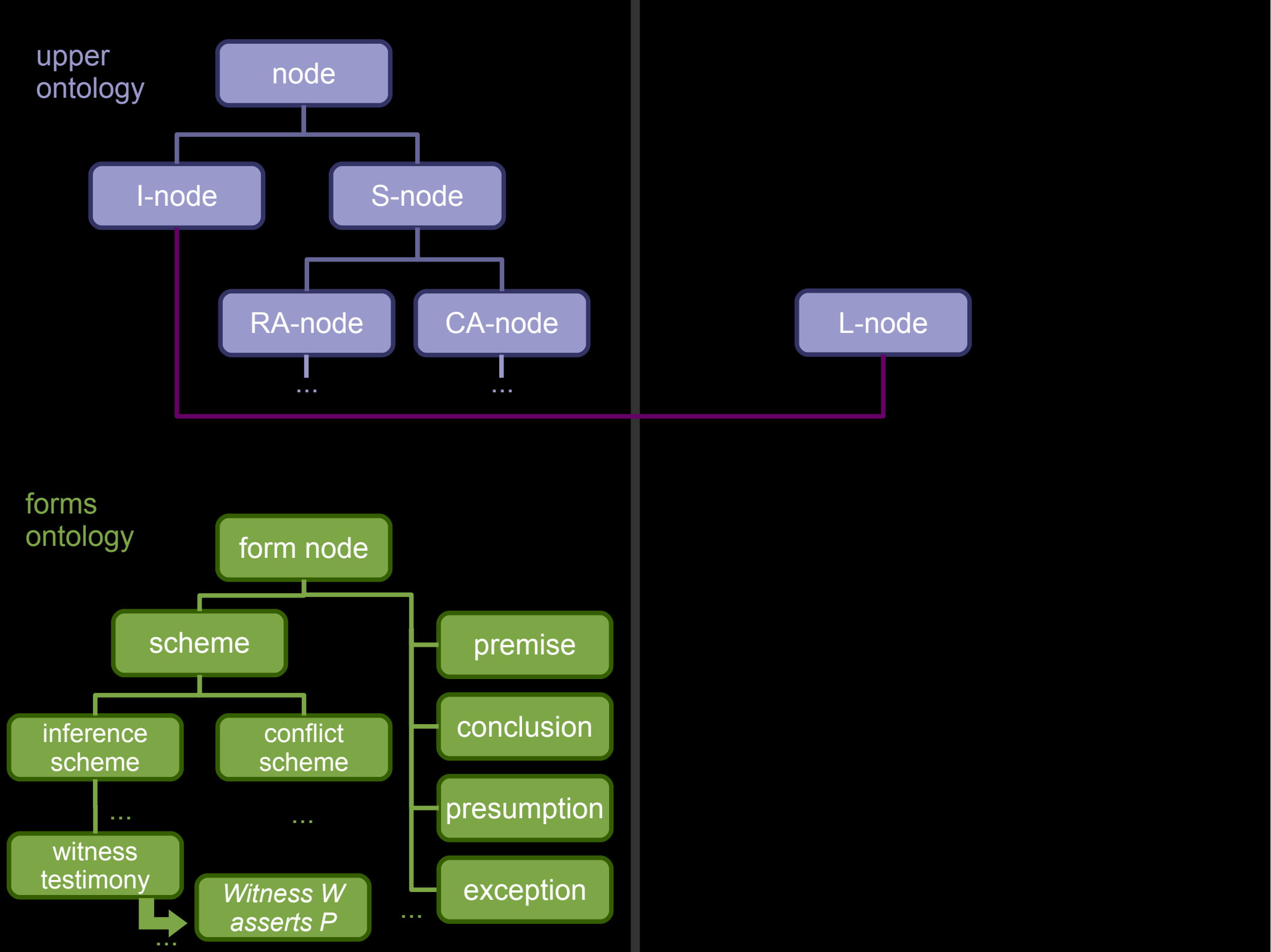
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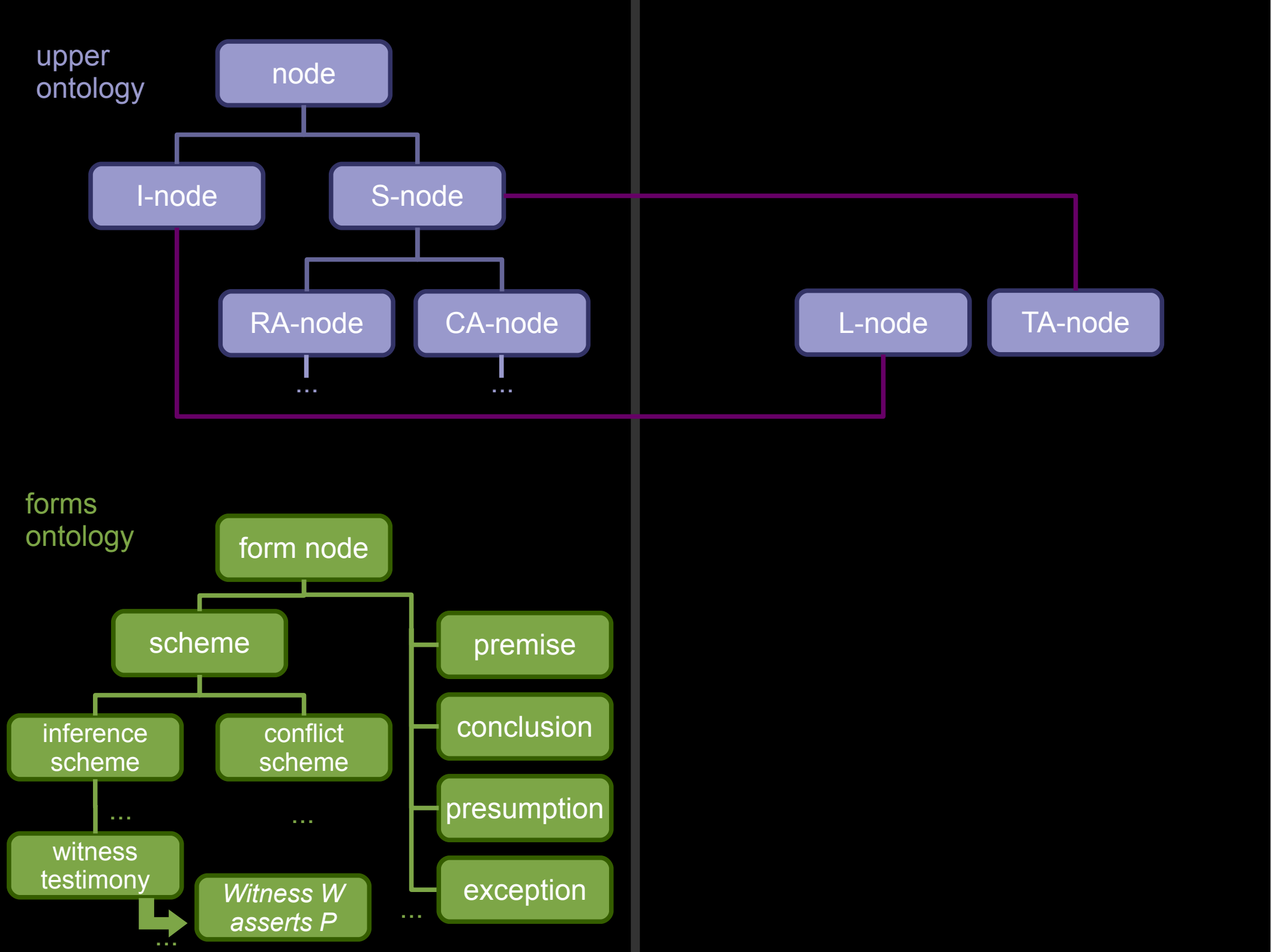
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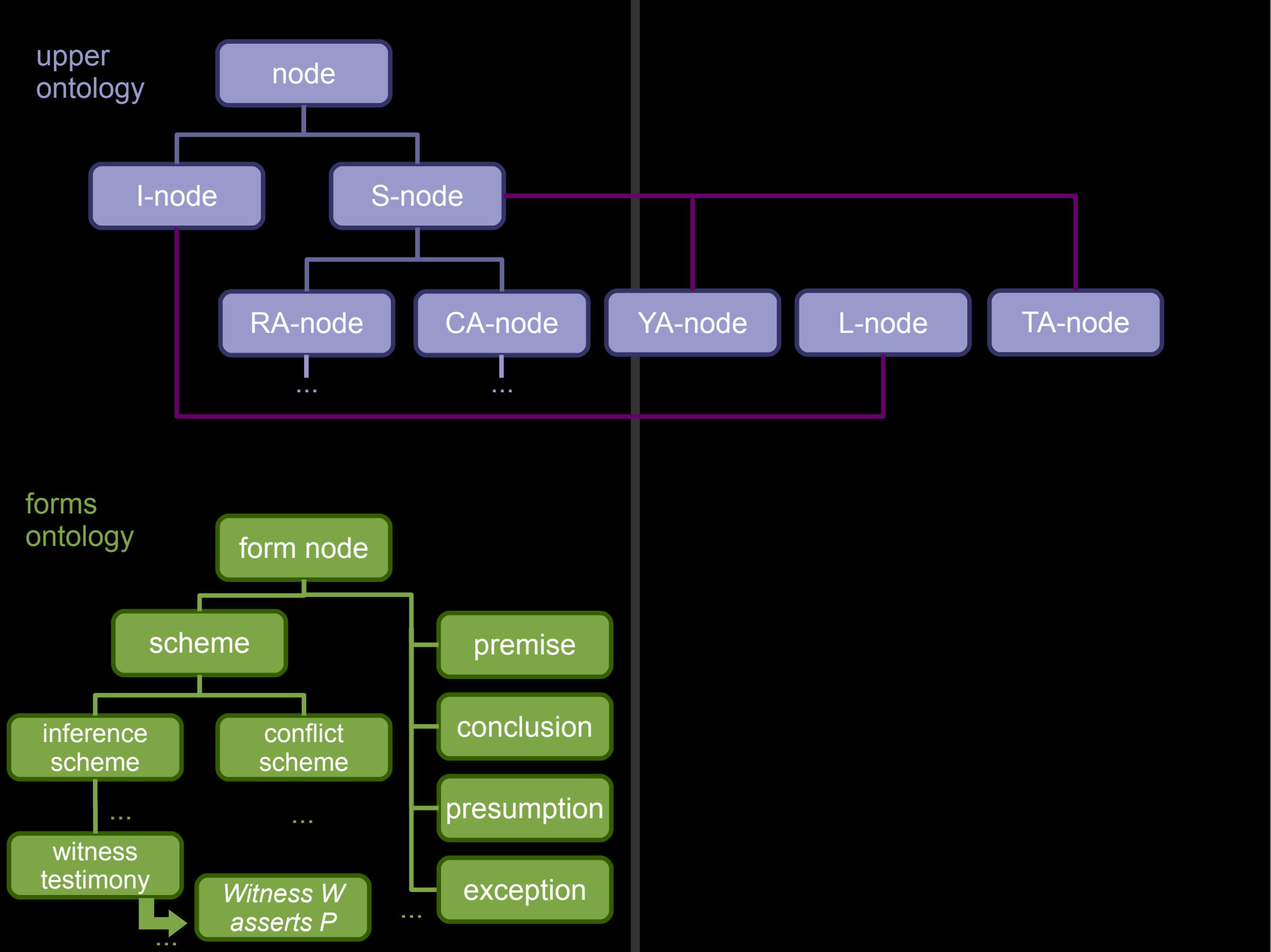
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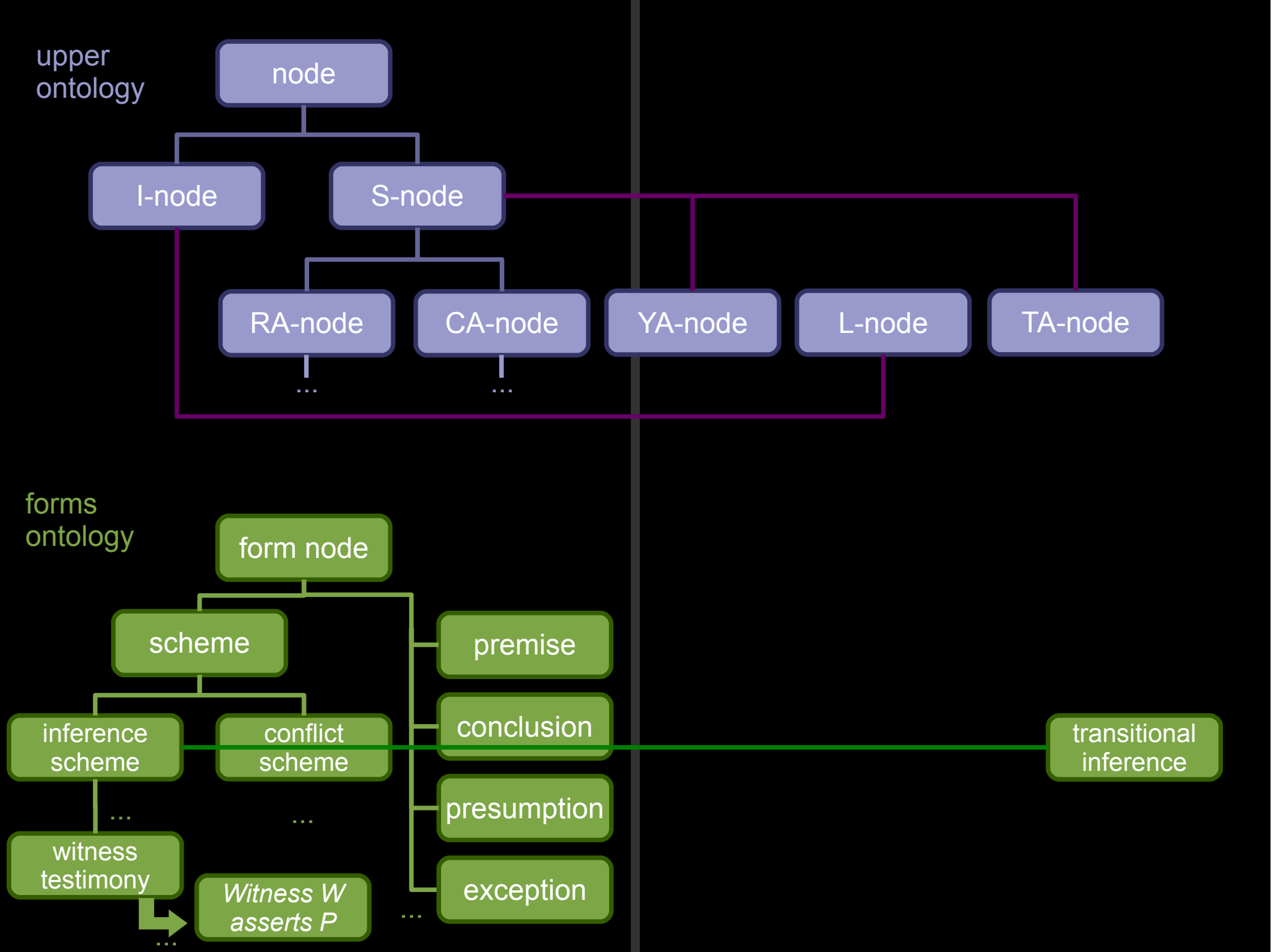
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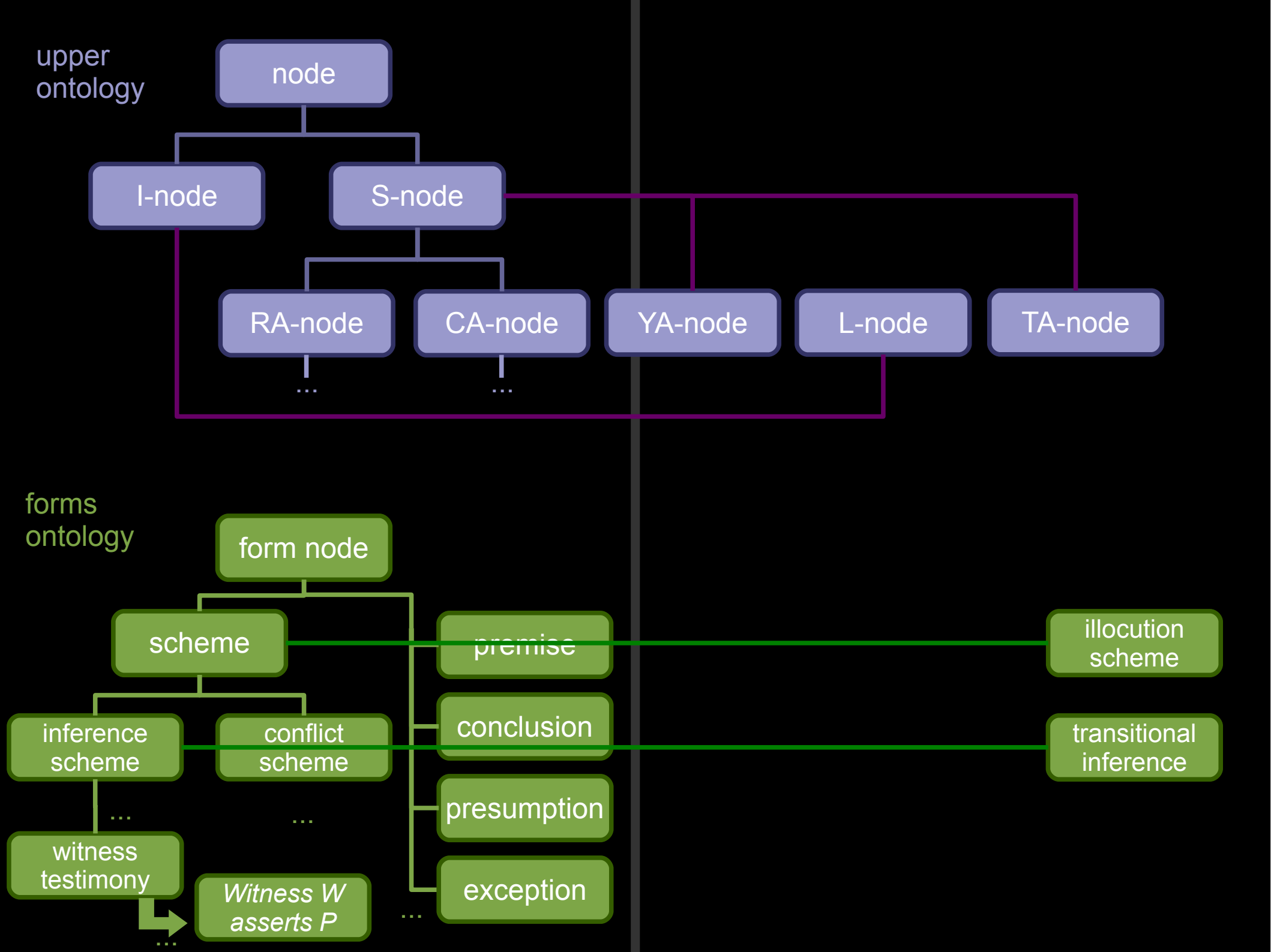
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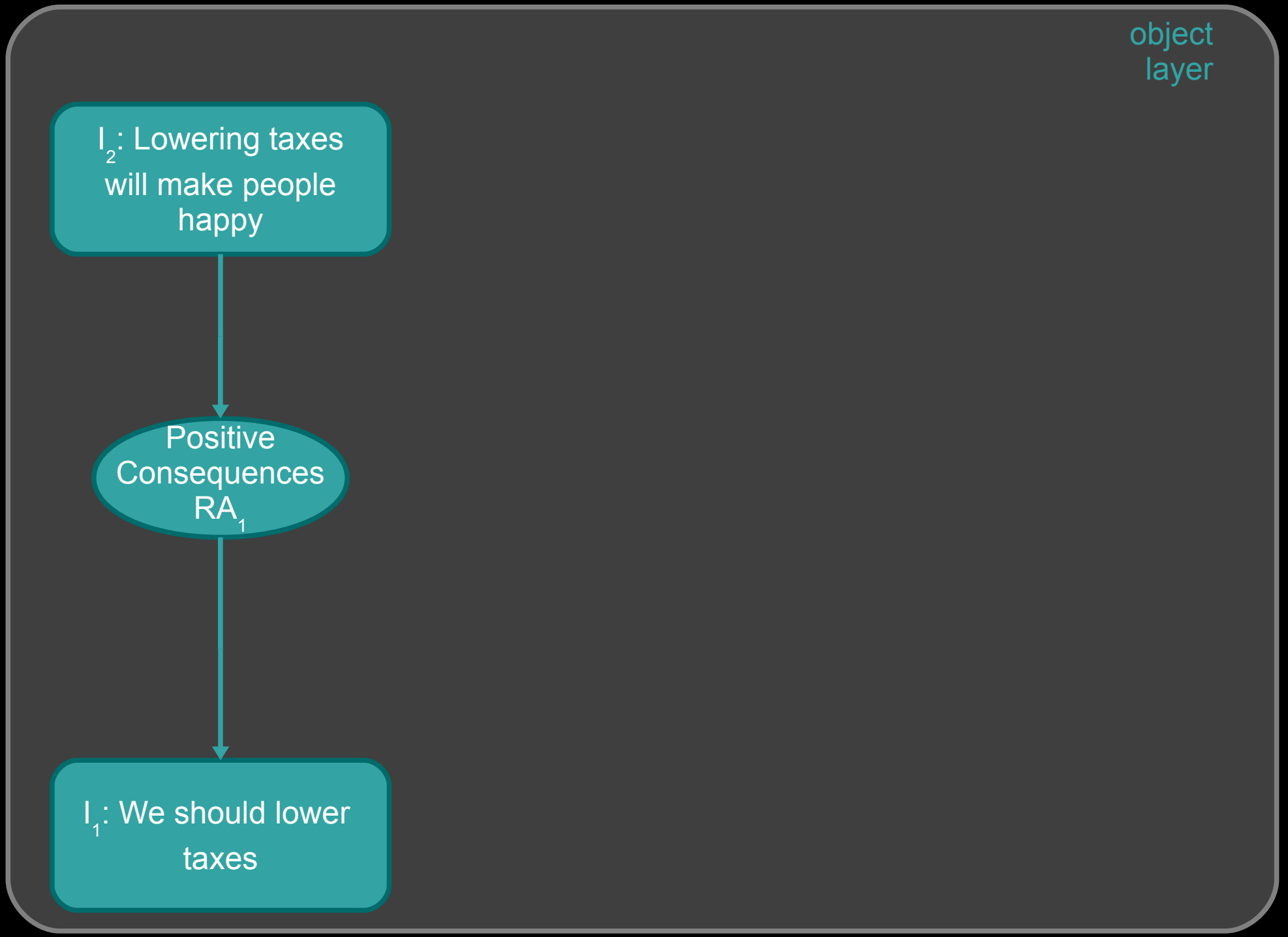
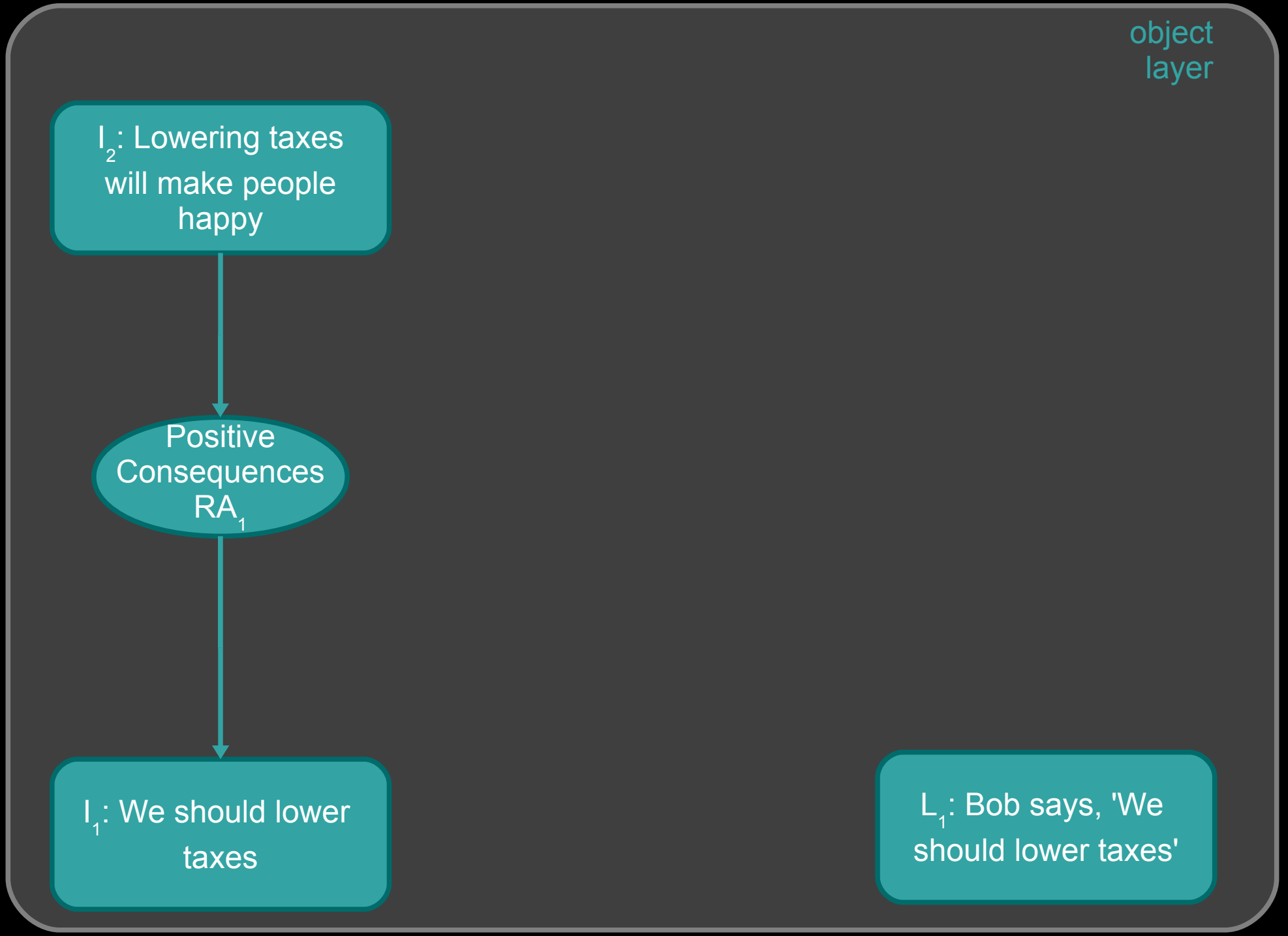

object layer
I2: Lowering taxes will make people happy
Positive Consequences RA1
I1: We should lower taxes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I2: Lowering taxes will make people happy
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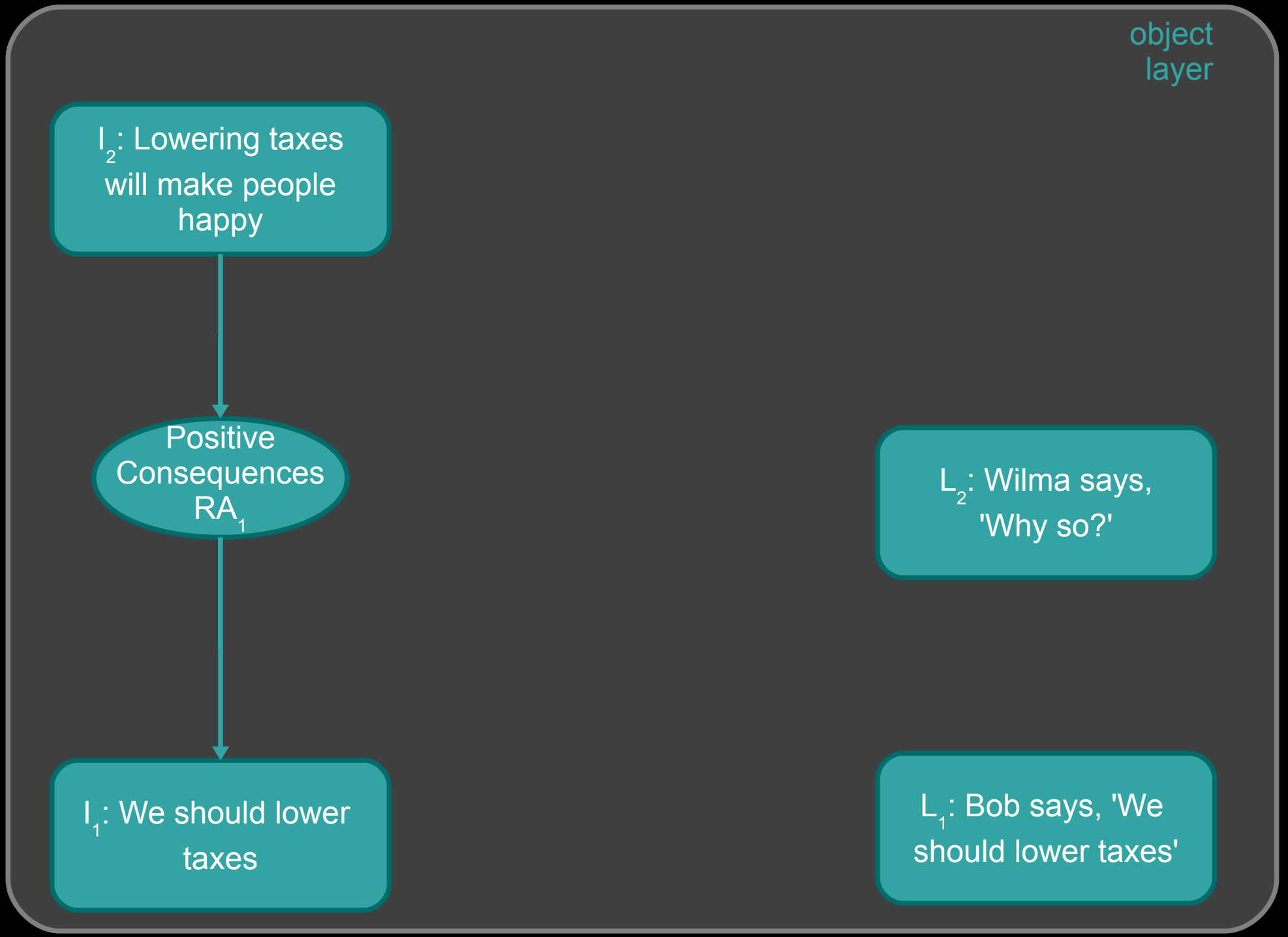
L1: Bob says, 'We should lower taxes'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L2: Wilma says, 'Why so?'
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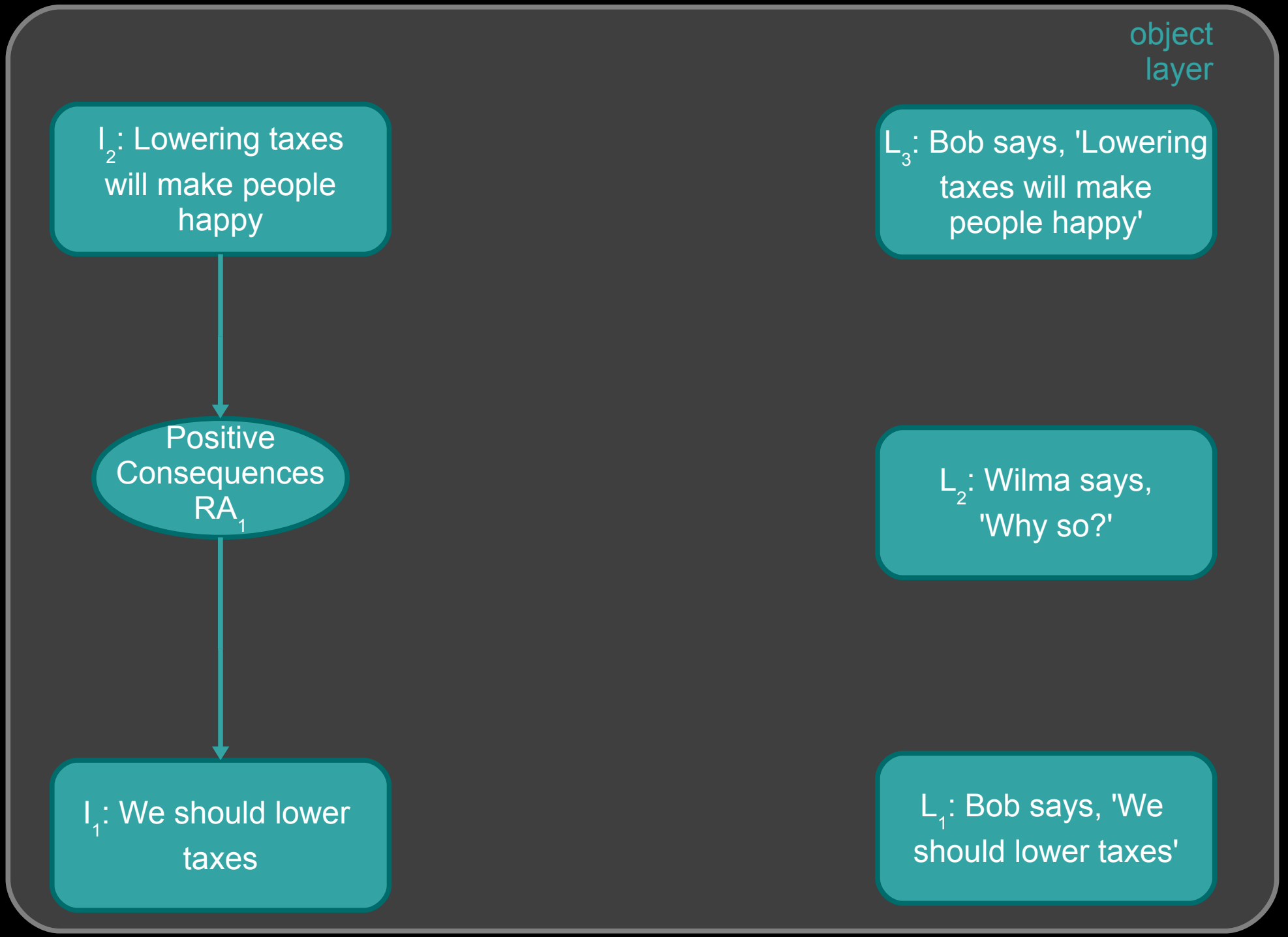
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Positive Consequences RA1
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L3: Bob says, 'Lowering taxes will make people happy'
L2: Wilma says, 'Why so?'
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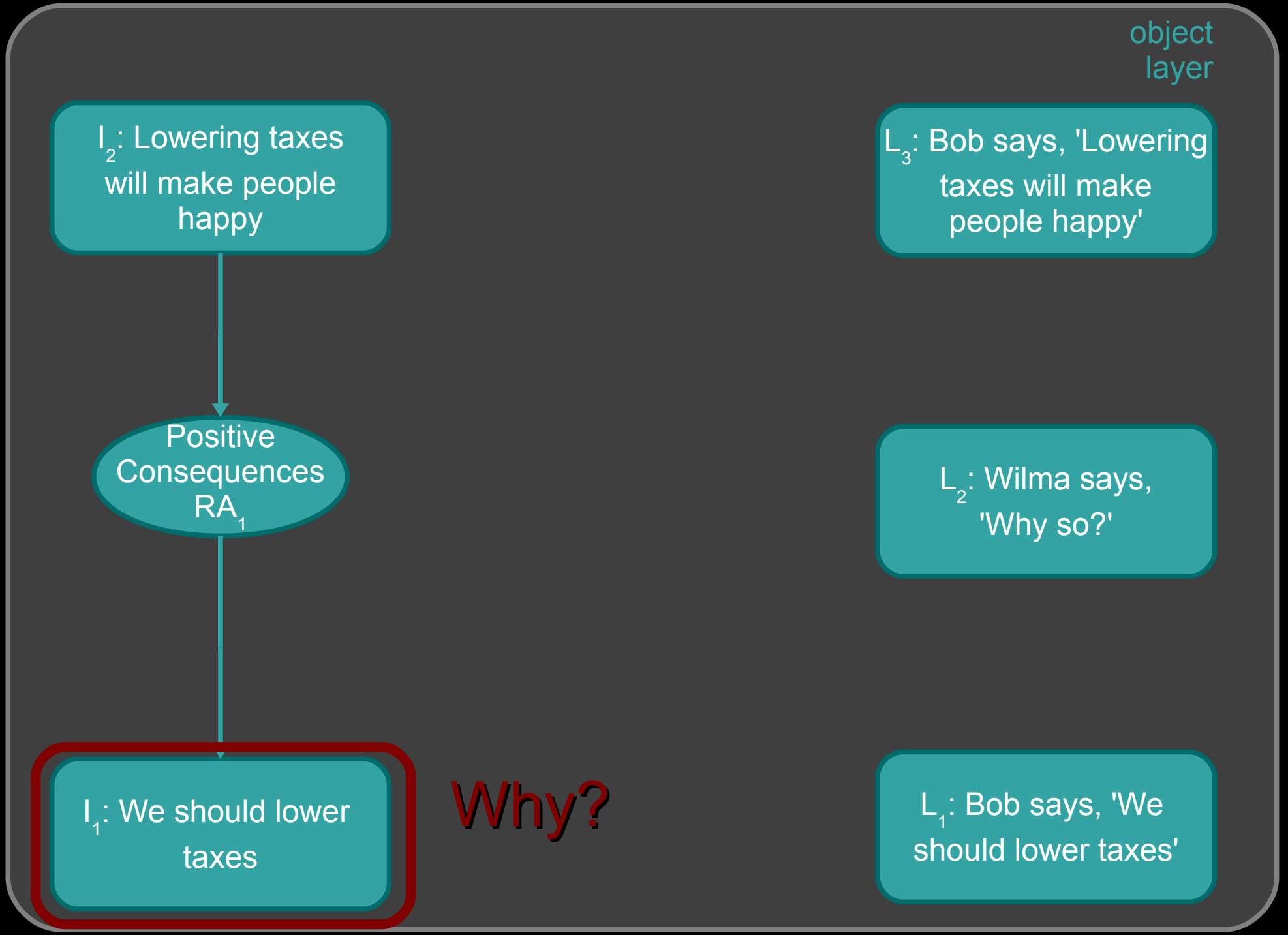
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Why?
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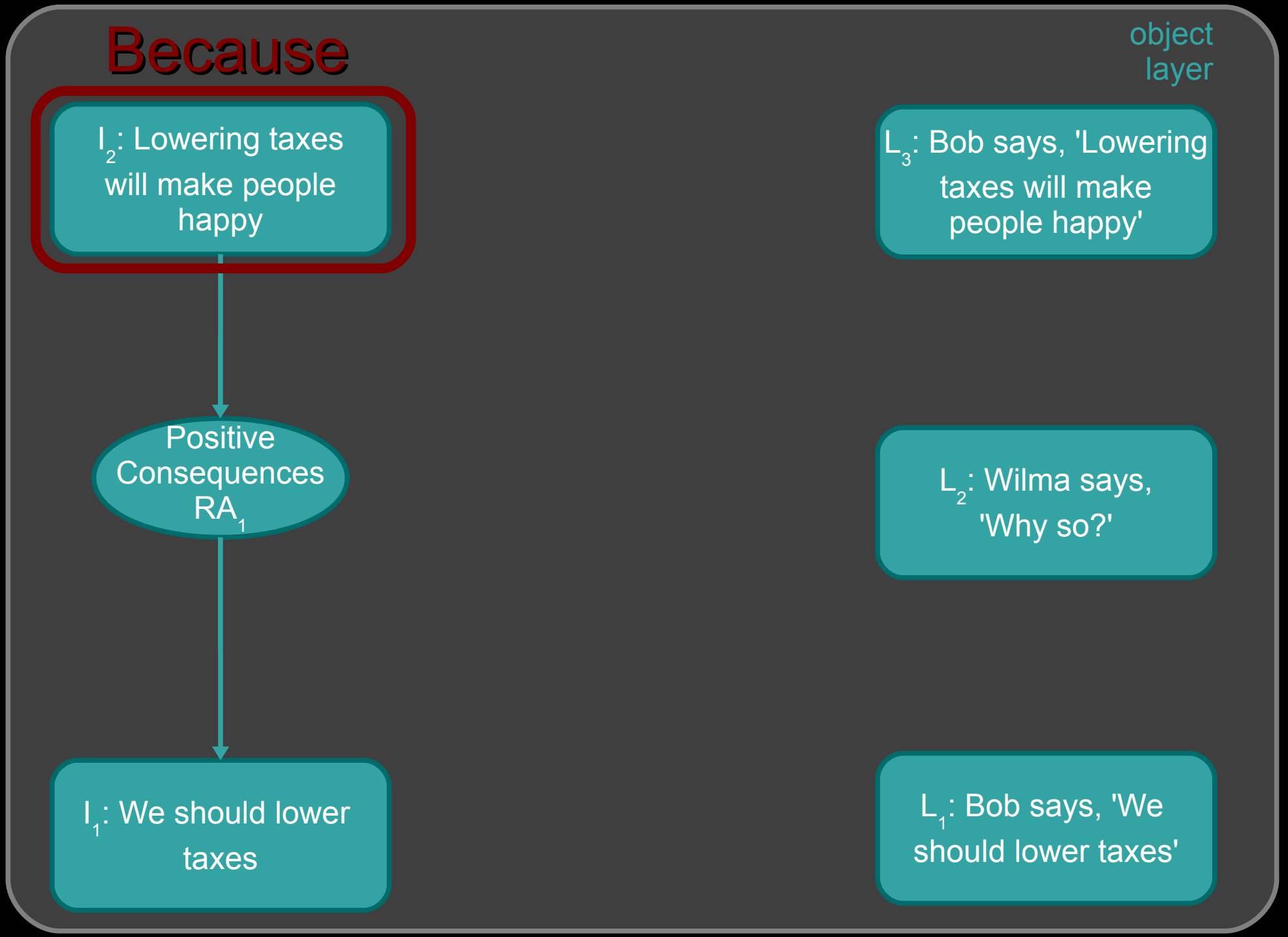
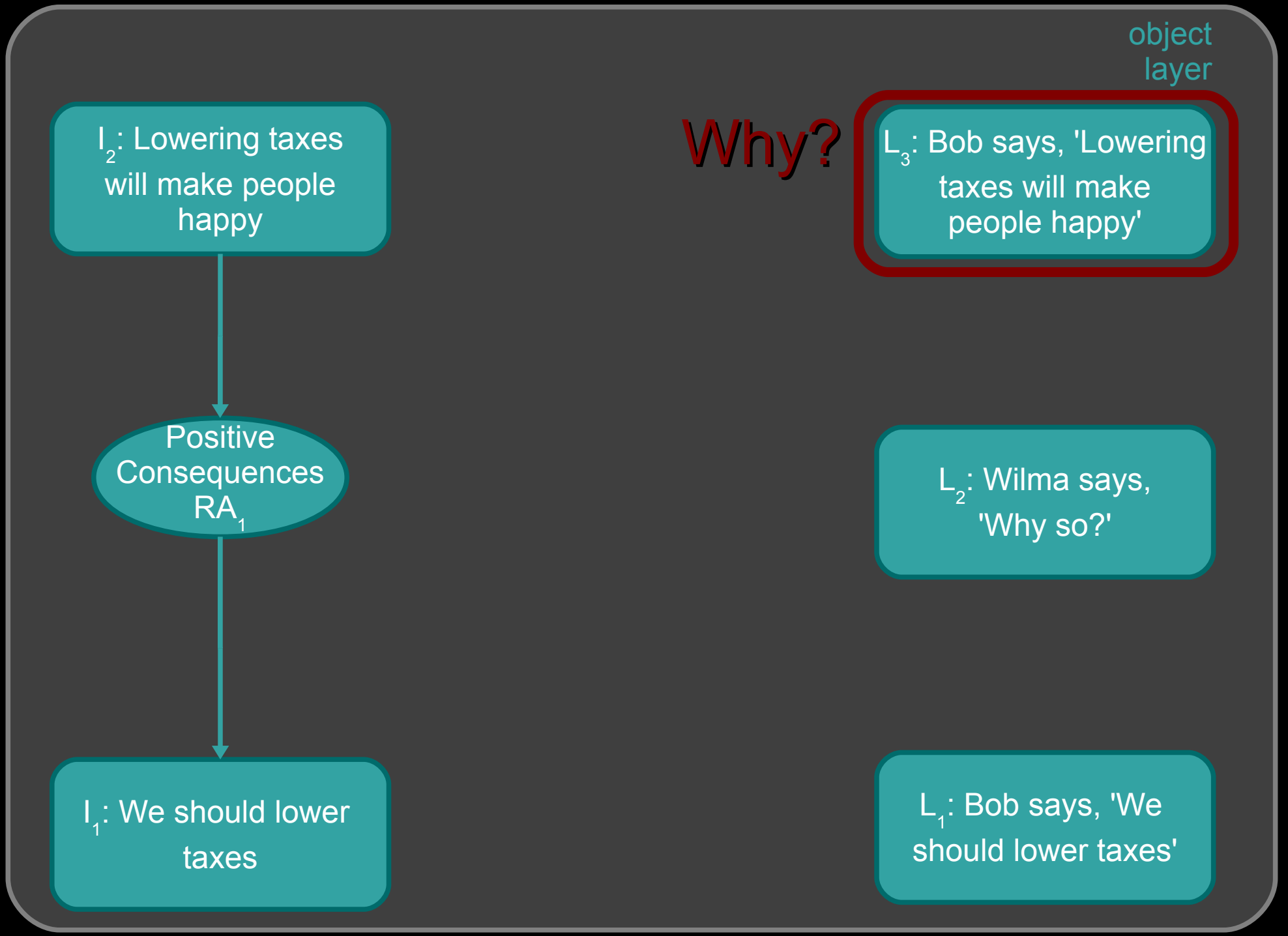

Because
object layer
I2: Lowering taxes will make people happy
L3: Bob says, 'Lowering taxes will make people happy'
Positive Consequences RA1
L2: Wilma says, 'Why so?'
I1: We should lower taxes
L1: Bob says, 'We should lower taxes'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Why?
I_2: Lowering taxes will make people happy
Positive Consequences RA_1
I_1: We should lower taxes
L_3: Bob says, 'Lowering taxes will make people happy'
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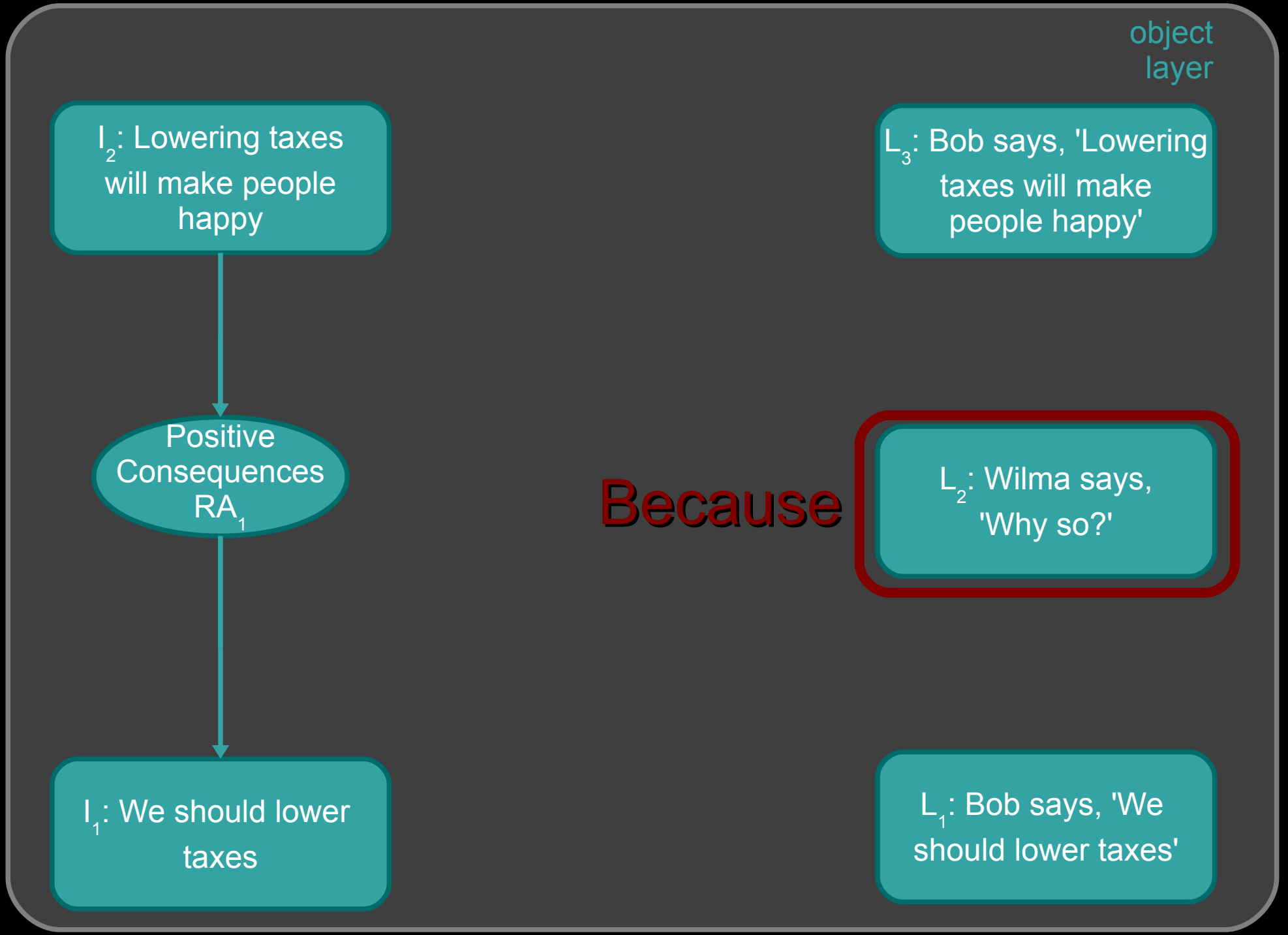
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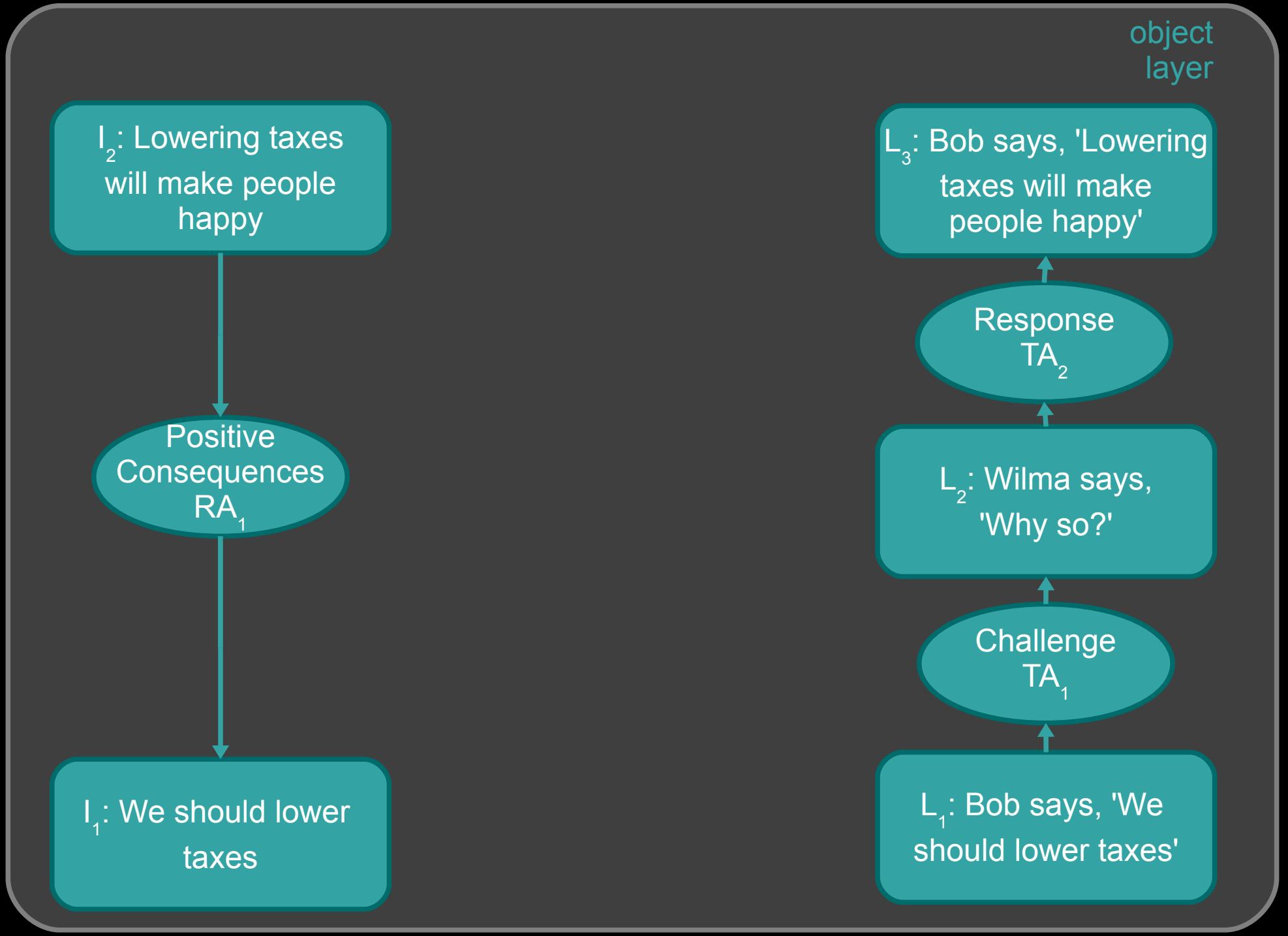
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A two-minute introduction to Speech Act Theory

J. L. Austin, *How to Do Things with Words*,
Oxford: Clarendon, 1962
J. Searle, *Speech Acts: An essay in the philosophy of language*,
Cambridge University Press, 1969.
J. Searle, A taxonomy of illocutionary acts, *Language. Mind and Knowledge, Minnesota Studies in the Philosophy of Science* VII (1975), 344–369.
J. Searle and D. Vanderveken, *Foundations of Illocutionary Logic*,
Cambridge University Press, 1985.

- A speech act *F*(*A*):
  - an illocutionary force *F* - expresses a communicative intention
  - a propositional content *A*.

- For example:
  claim(A), why(A), warn(A), promise(A), argue(A), etc.
  John may utter *A* with a force of asserting, asking, warning, promising, arguing, etc.

A two-minute introduction to Speech Act Theory

K. Bach and R. Harnish, *Linguistic Communication and Speech Acts*,
M.I.T. Press, Cambridge, 1979.

(1) *assertives*: S's belief
e.g. claiming, conceding, testifying, deducing, arguing, denying, criticizing, rebutting.

(2) *directives*: attitude about a possible future H's act
e.g. asking, commending, requesting, advising.

(3) *commissives*: S's intention to do something
e.g. promising, threatening, offering.

(4) *acknowledgments*: feelings toward H
e.g. apologizing, congratulating, thanking.

A two-minute introduction to Speech Act Theory

J. Searle, *Speech Acts: An essay in the philosophy of language*,
Cambridge University Press, 1969

The constitutive rules - determine what constitutes a successful speech act

(1) *propositional content rules*:

some illocutions can only be achieved with an appropriate propositional content,
e.g. a promise may refer only to what is in the future and under the control of a speaker,

(2) *preparatory rules*:

determine what a speaker presupposes in performing a speech act,
e.g. a speaker cannot marry a couple unless he is legally authorized to do so,

(3) *sincerity rules*:

tell what psychological state is expressed
e.g. an assertion expresses belief, a promise expresses an intention to do something
a speech act is sincere only if a speaker is actually in this state,

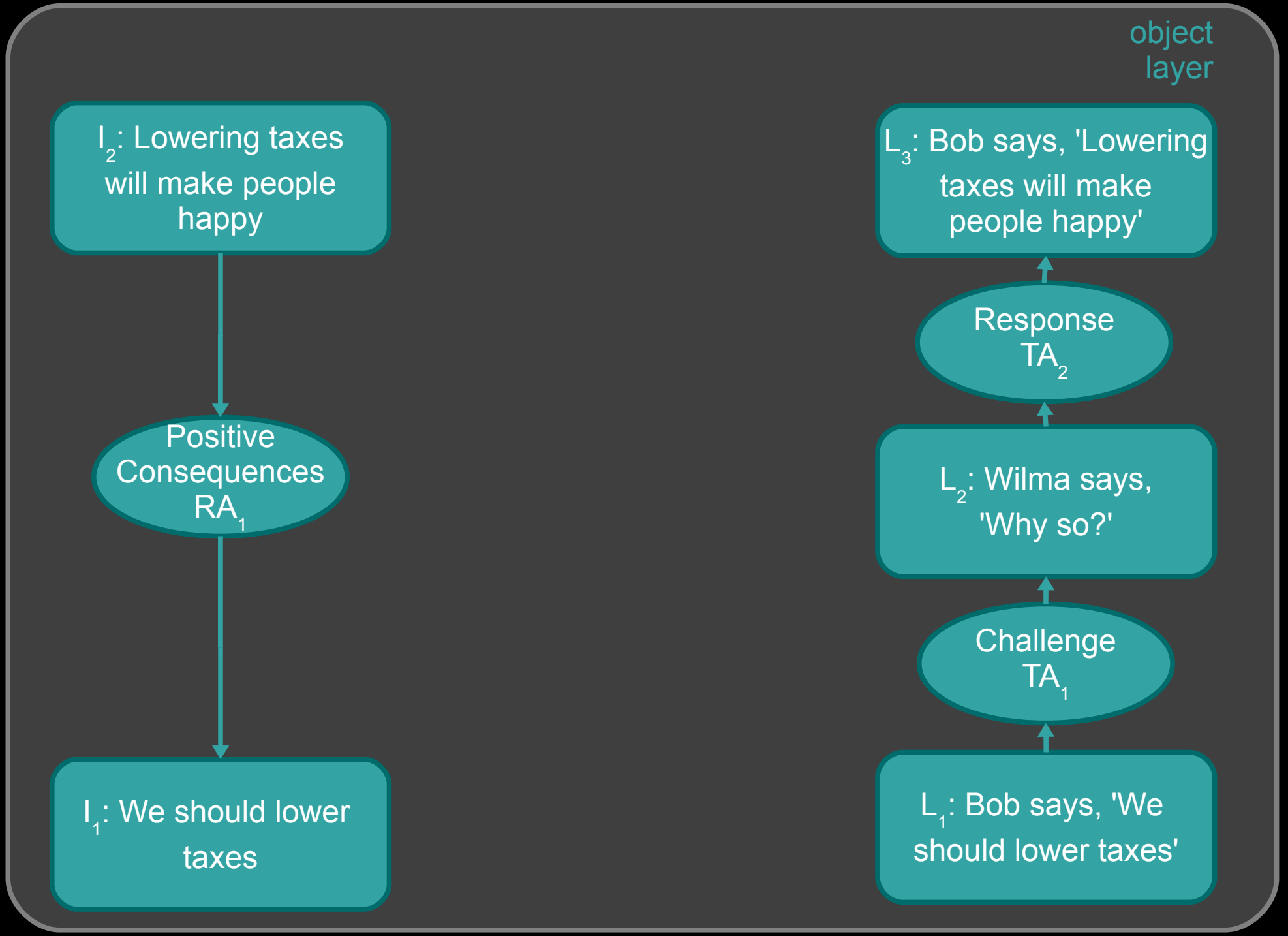
(4) *essential rules*:

determine what a speech act consists in essentially,
e.g. a promise commits a speaker to perform an act expressed in a propositional content.

A two-minute introduction to Speech Act Theory

A speech act can be felicitous or infelicitous depending on whether or not it successfully performs a given action.

The promise “I met you yesterday” is infelicitous - it does not fulfill the propositional content condition: the propositional content does not refer to a future action.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I1: We should lower taxes
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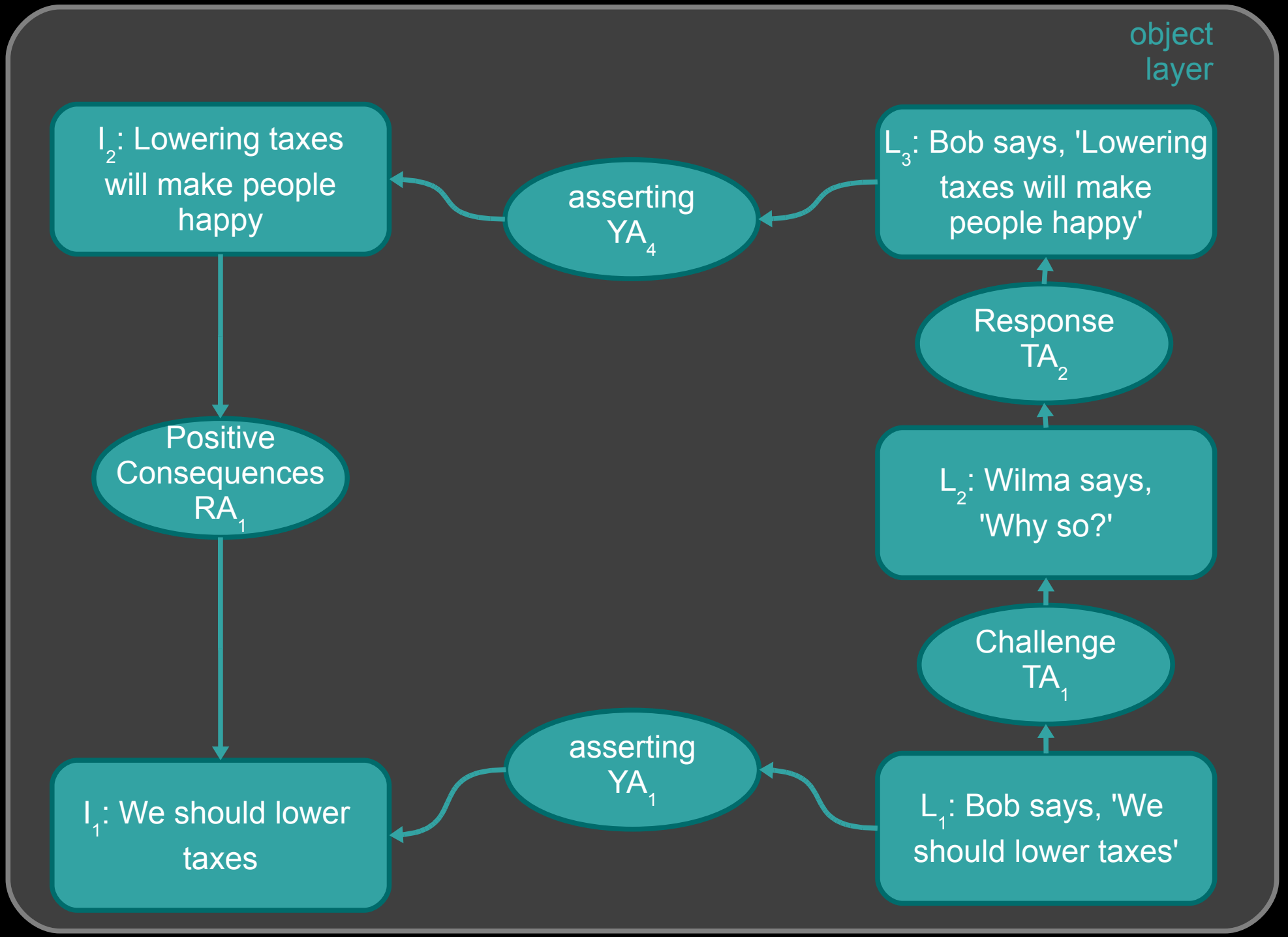
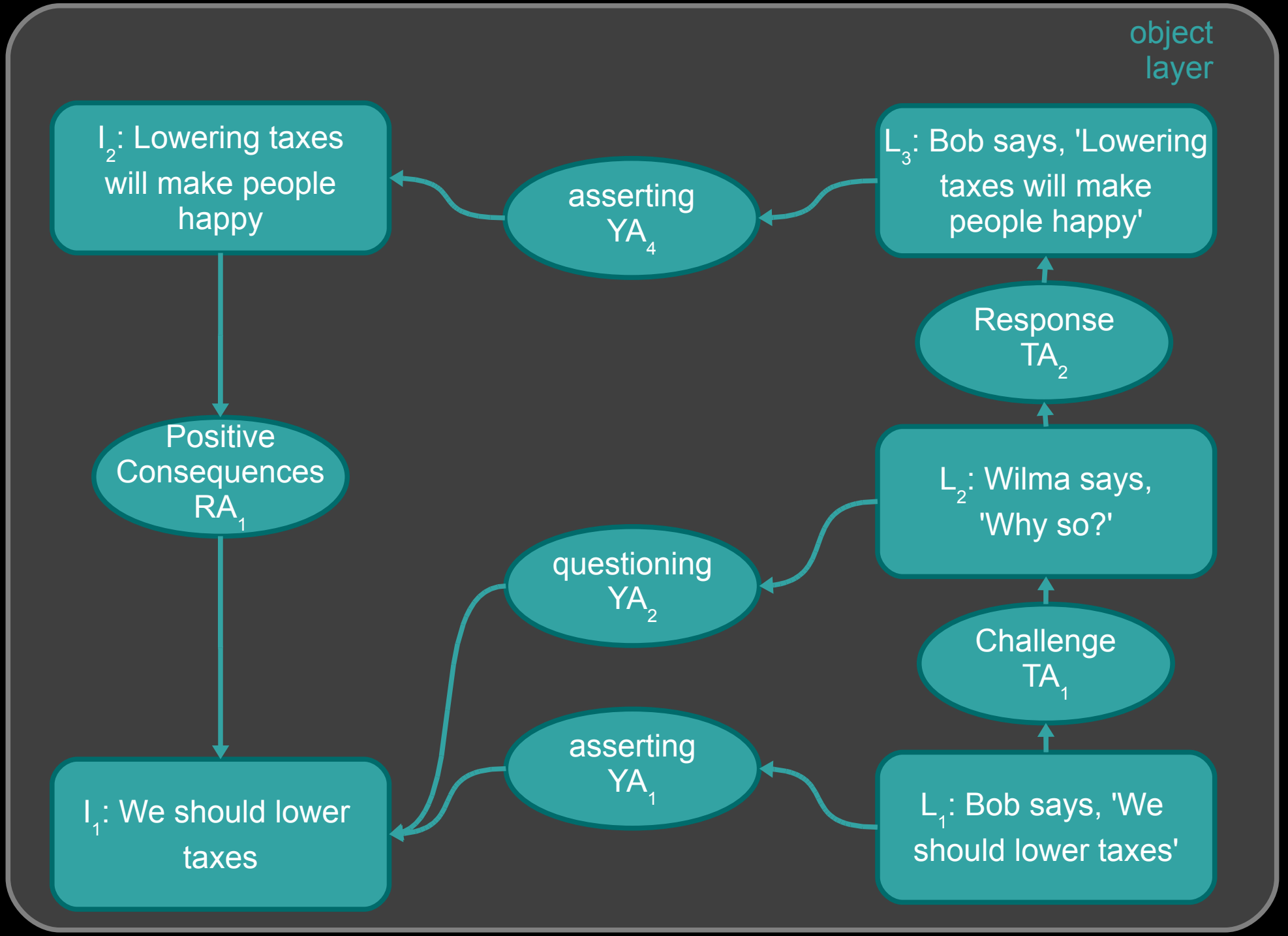

object layer
I2: Lowering taxes will make people happy
asserting YA4
L3: Bob says, 'Lowering taxes will make people happy'
Response TA2
Positive Consequences RA1
L2: Wilma says, 'Why so?'
Challenge TA1
asserting YA1
I1: We should lower taxes
L1: Bob says, 'We should lower taxes'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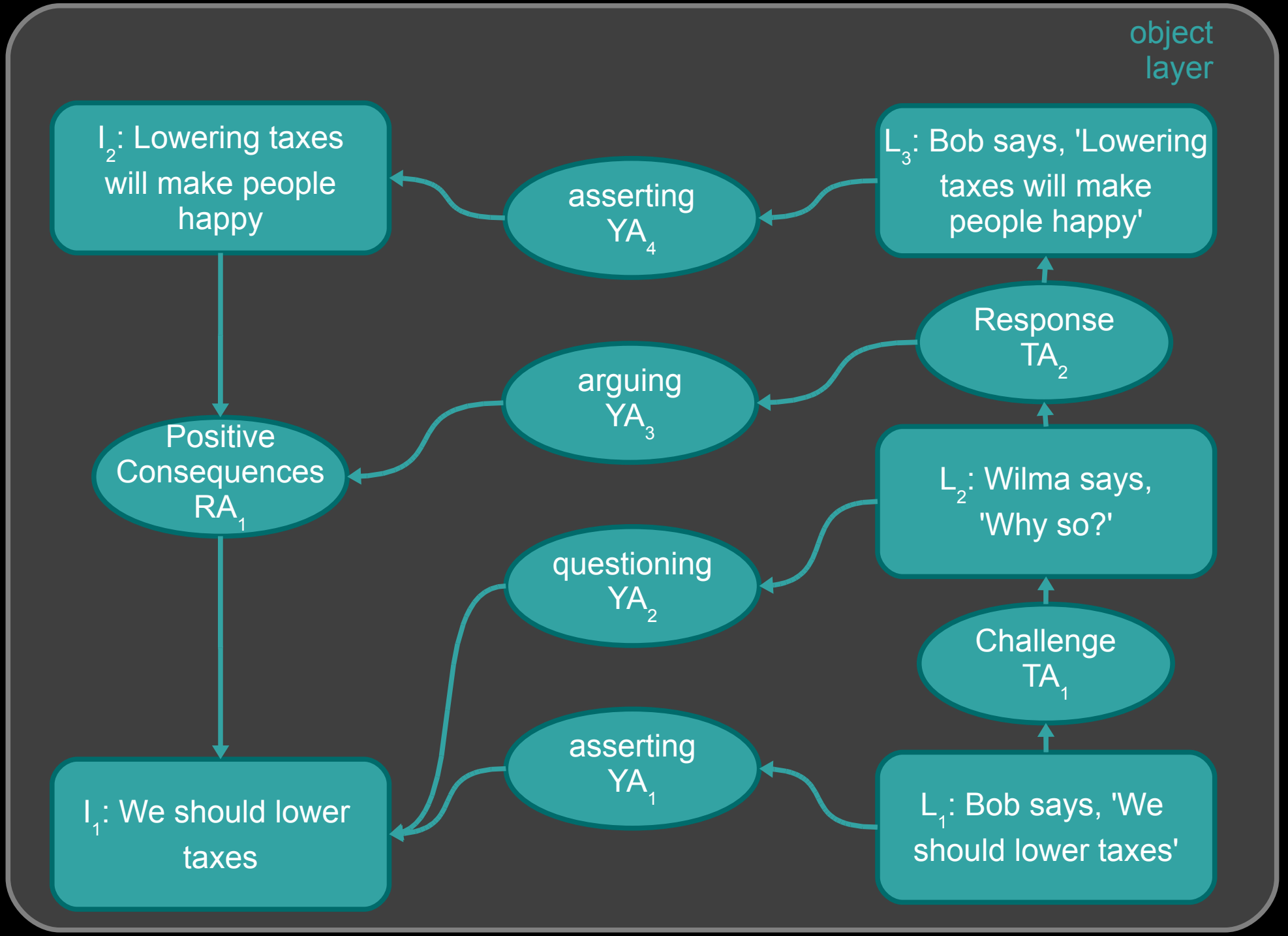
L3: Bob says, 'Lowering taxes will make people happy'
Response TA2
Positive Consequences RA1
L2: Wilma says, 'Why so?'
questioning YA2
Challenge TA1
asserting YA1
I1: We should lower taxes
L1: Bob says, 'We should lower taxes'


object layer
I2: Lowering taxes will make people happy
asserting YA4
L3: Bob says, 'Lowering taxes will make people happy'
Response TA2
arguing YA3
Positive Consequences RA1
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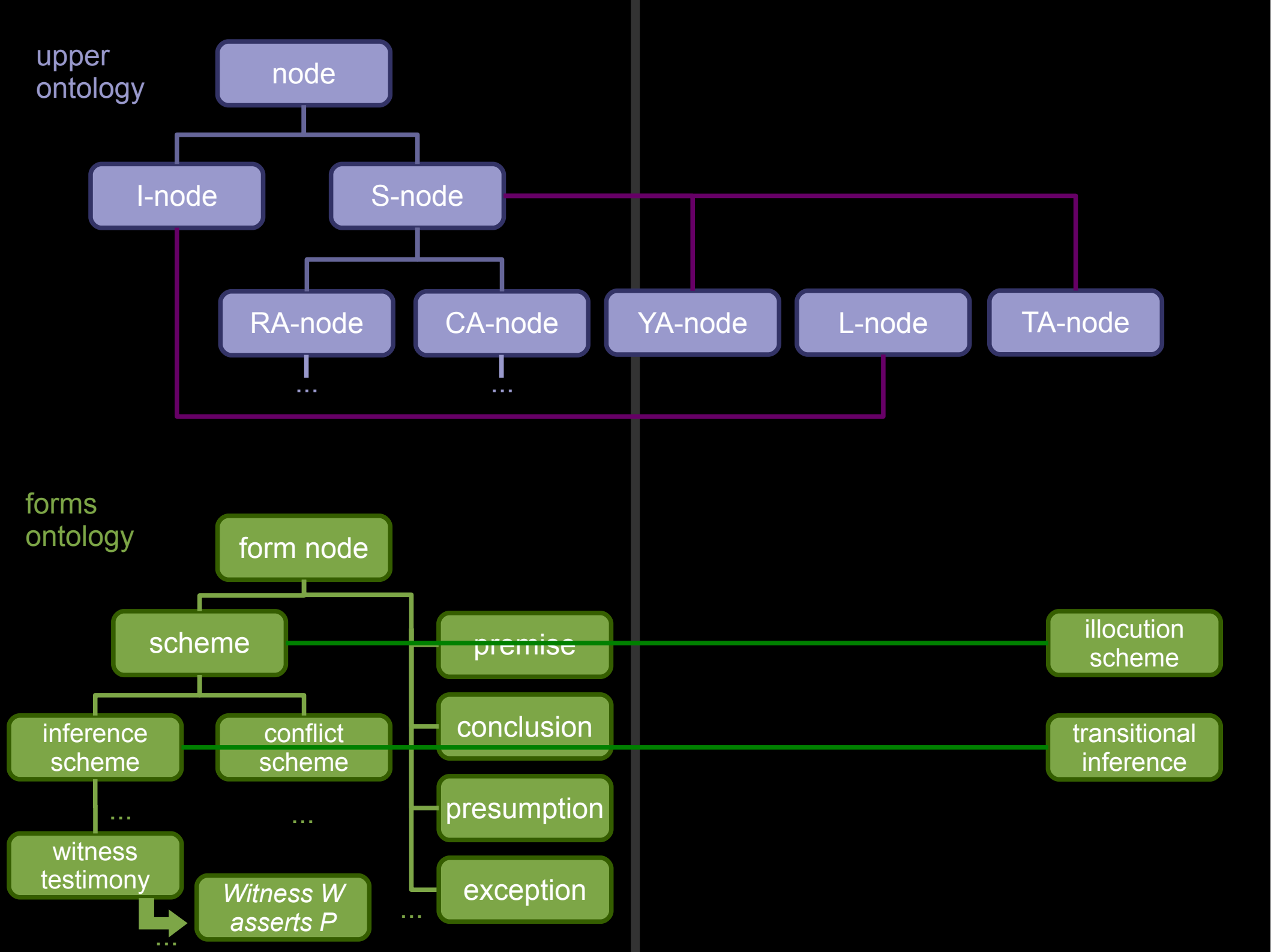
questioning YA2
Challenge TA1
asserting YA1
I1: We should lower taxes
L1: Bob says, 'We should lower taxes'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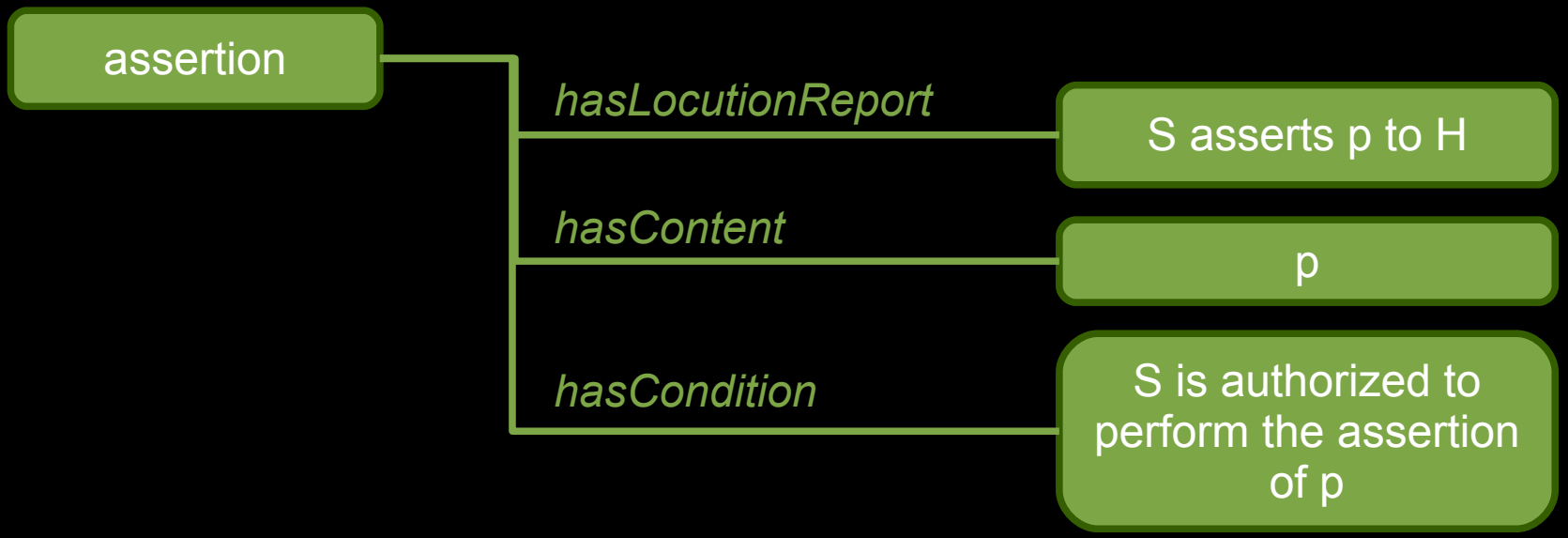
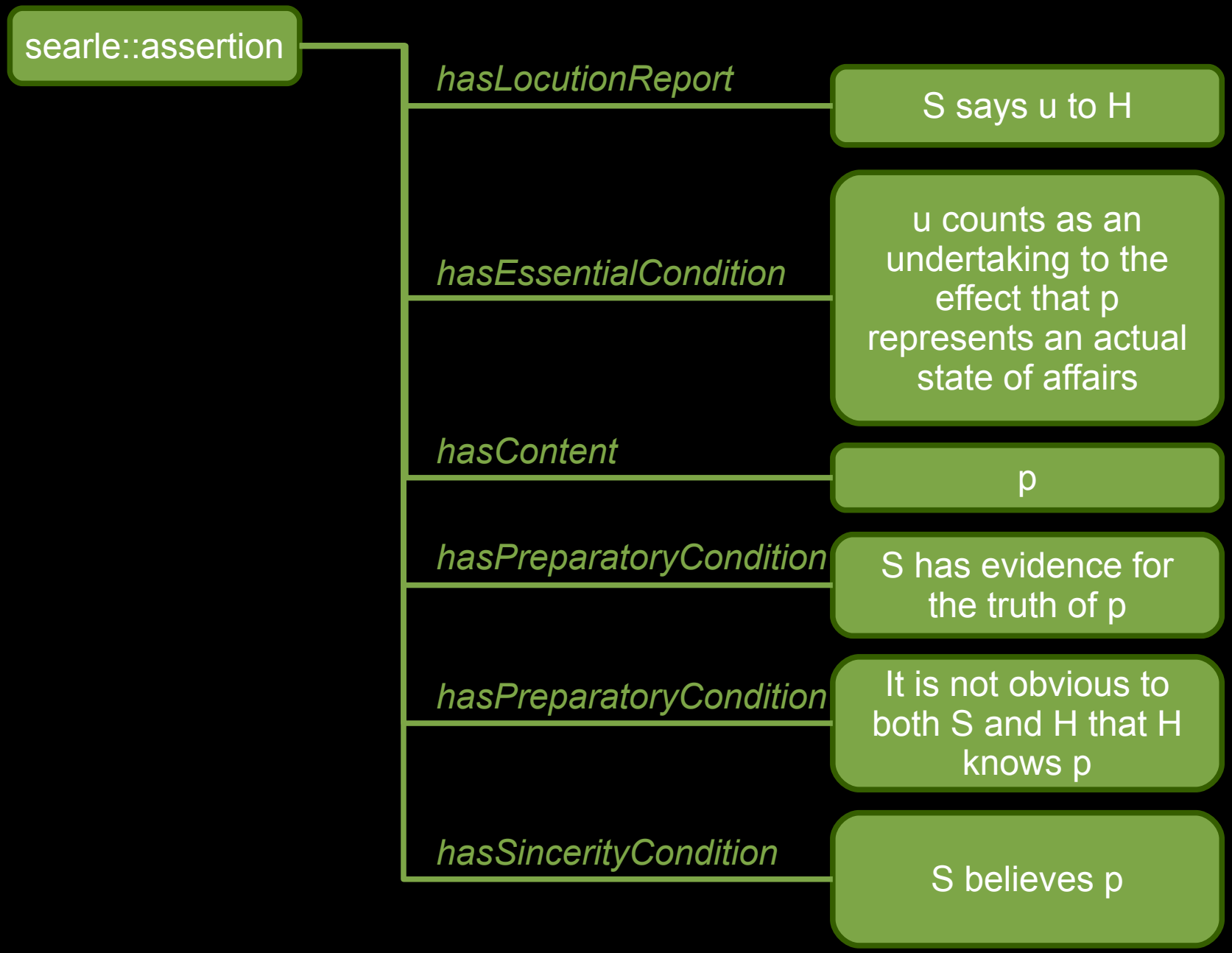
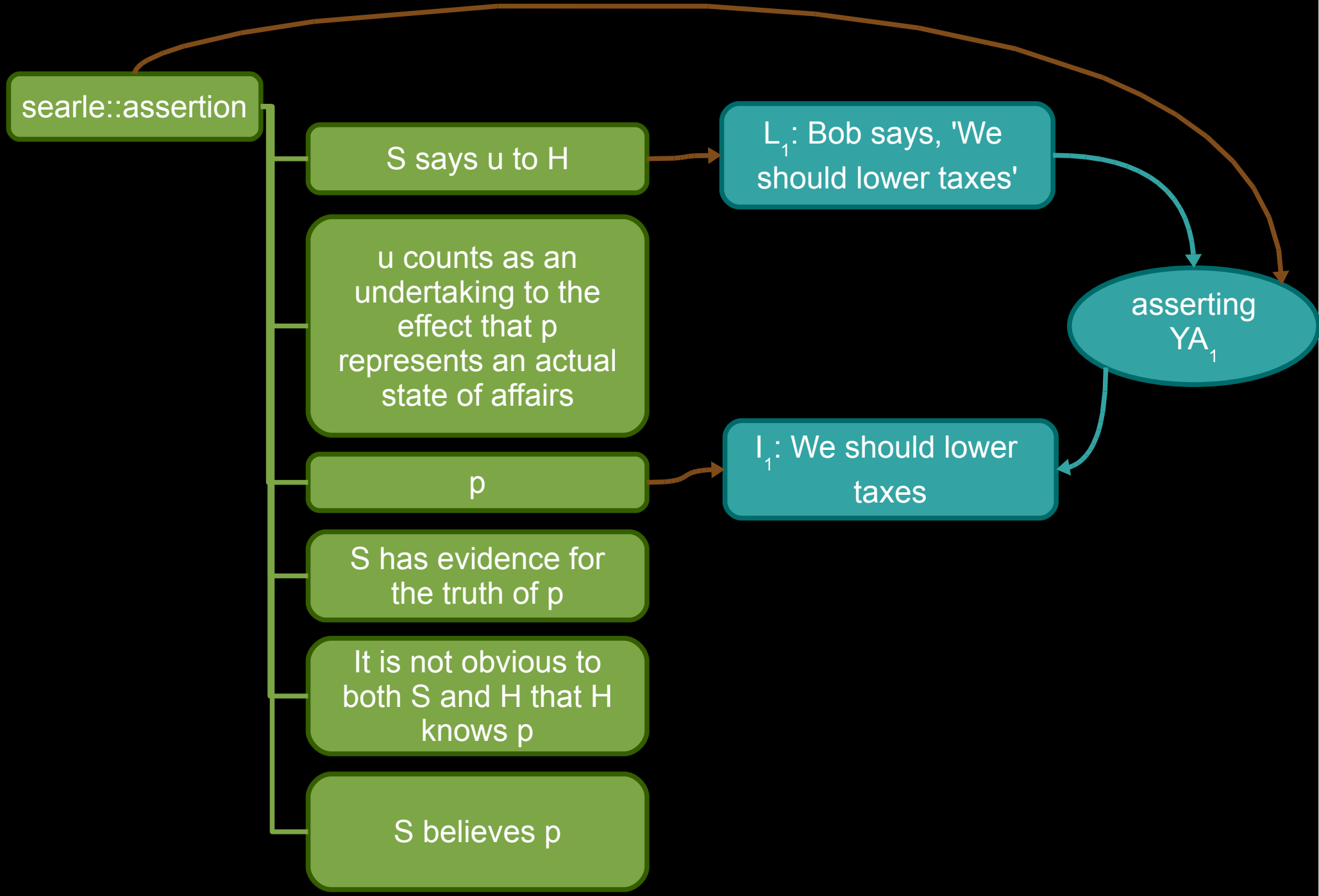

assertion
hasLocutionReport
S asserts p to H
hasContent
p
hasCondition
S is authorized to perform the assertion of p


searle::assertion
hasLocutionReport
S says u to H
hasEssentialCondition
u counts as an undertaking to the effect that p represents an actual state of affairs
hasContent
p
hasPreparatoryCondition
S has evidence for the truth of p
hasPreparatoryCondition
It is not obvious to both S and H that H knows p
hasSincerityCondition
S believes p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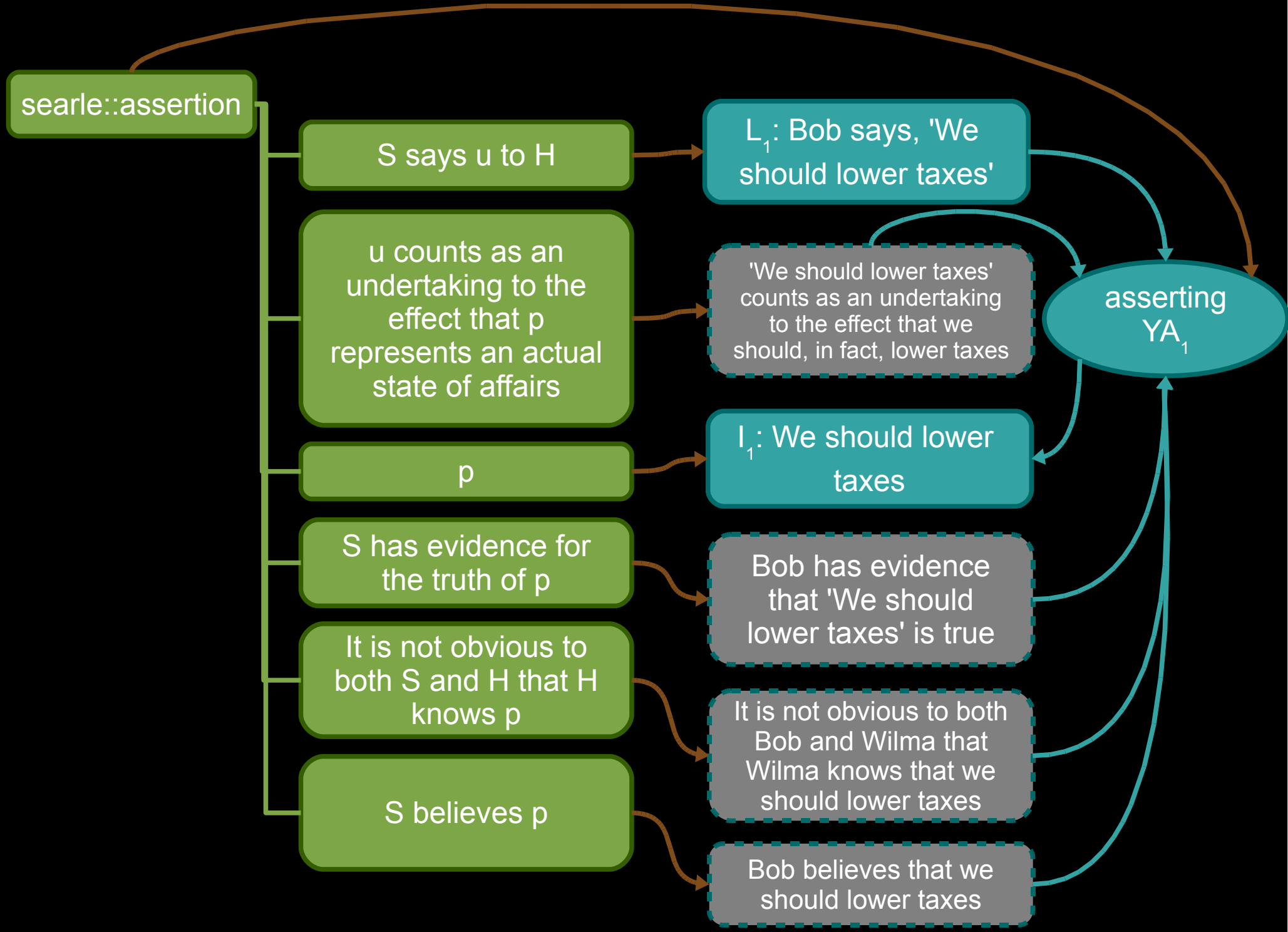
S says u to H
u counts as an undertaking to the effect that p represents an actual state of affairs
p
S has evidence for the truth of p
It is not obvious to both S and H that H knows p
S believes p
L1: Bob says, 'We should lower taxes'
asserting YA1
I1: We should lower taxes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S says u to H
u counts as an undertaking to the effect that p represents an actual state of affairs
p
S has evidence for the truth of p
It is not obvious to both S and H that H knows p
S believes p
L1: Bob says, 'We should lower taxes'
'We should lower taxes' counts as an undertaking to the effect that we should, in fact, lower taxes
I1: We should lower taxes
Bob has evidence that 'We should lower taxes' is true
It is not obvious to both Bob and Wilma that Wilma knows that we should lower taxes
Bob believes that we should lower taxes
asserting YA1

Conclusions

A linguistically grounded conceptualisation of the connection between a dialogue and its domain of discourse

Illocutionary relations can be schematised in a way that is similar to inferential and dialogical relations

- implicit propositions made available
- general forms represented and then specific examples instantiated

With the link between arguments$_1$ and arguments$_2$ in place

- we can automatically generate arguments$_1$ from dialogues
- we can automatically produce novel, naturalistic dialogues from argument$_1$ structures