



JULY 14, 2025

# REAL LIFE GAMES: HOW GAME THEORY SHAPES HUMAN DECISIONS

# SIGNALING GAMES

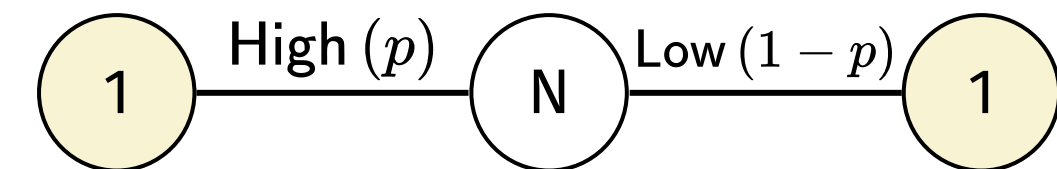
Adrian Haret  
a.haret@lmu.de

In *signaling games* players need to be screened based on public information (*signals*) about some private trait (*type*).



# A SIGNALING GAME

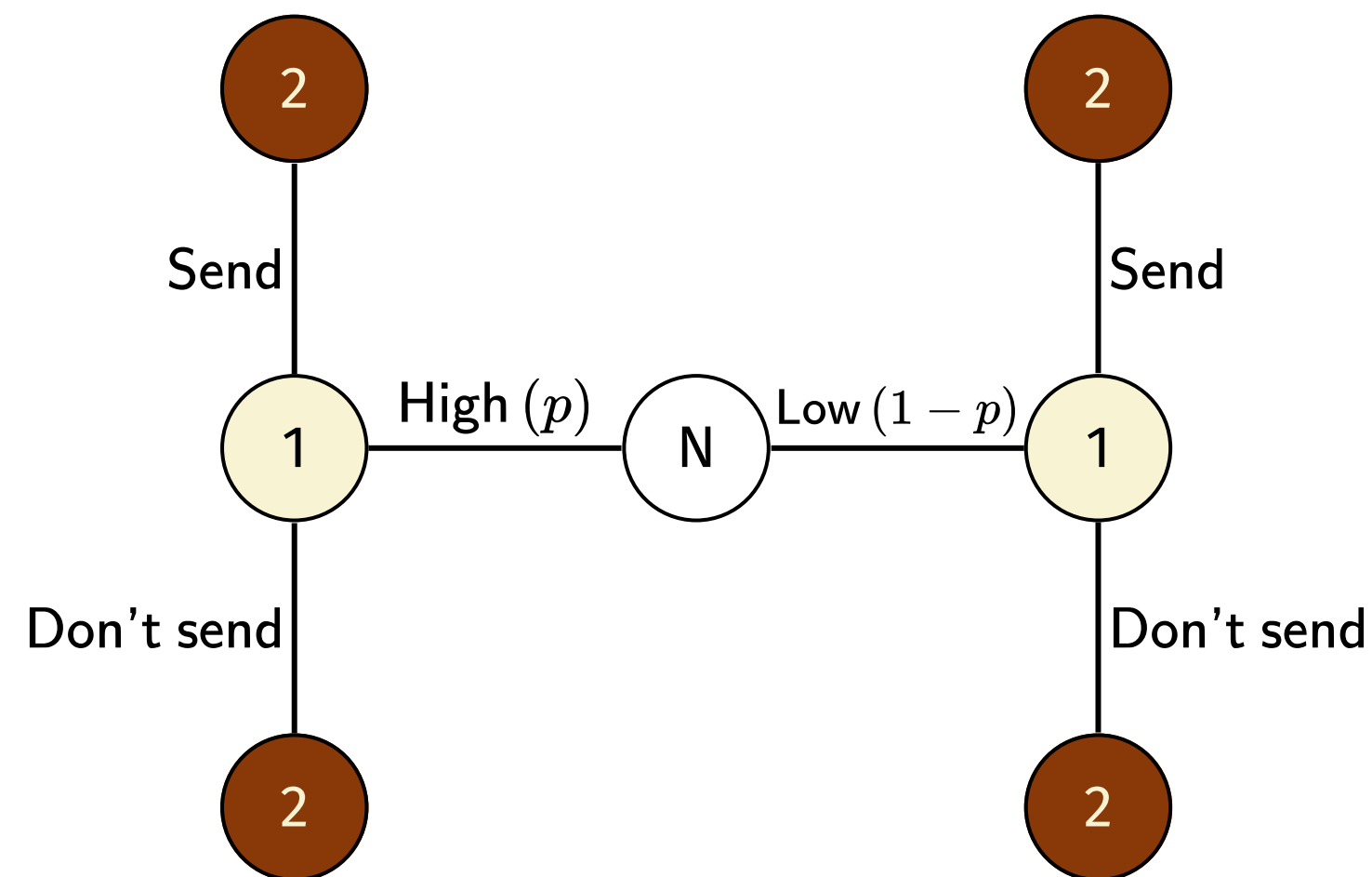
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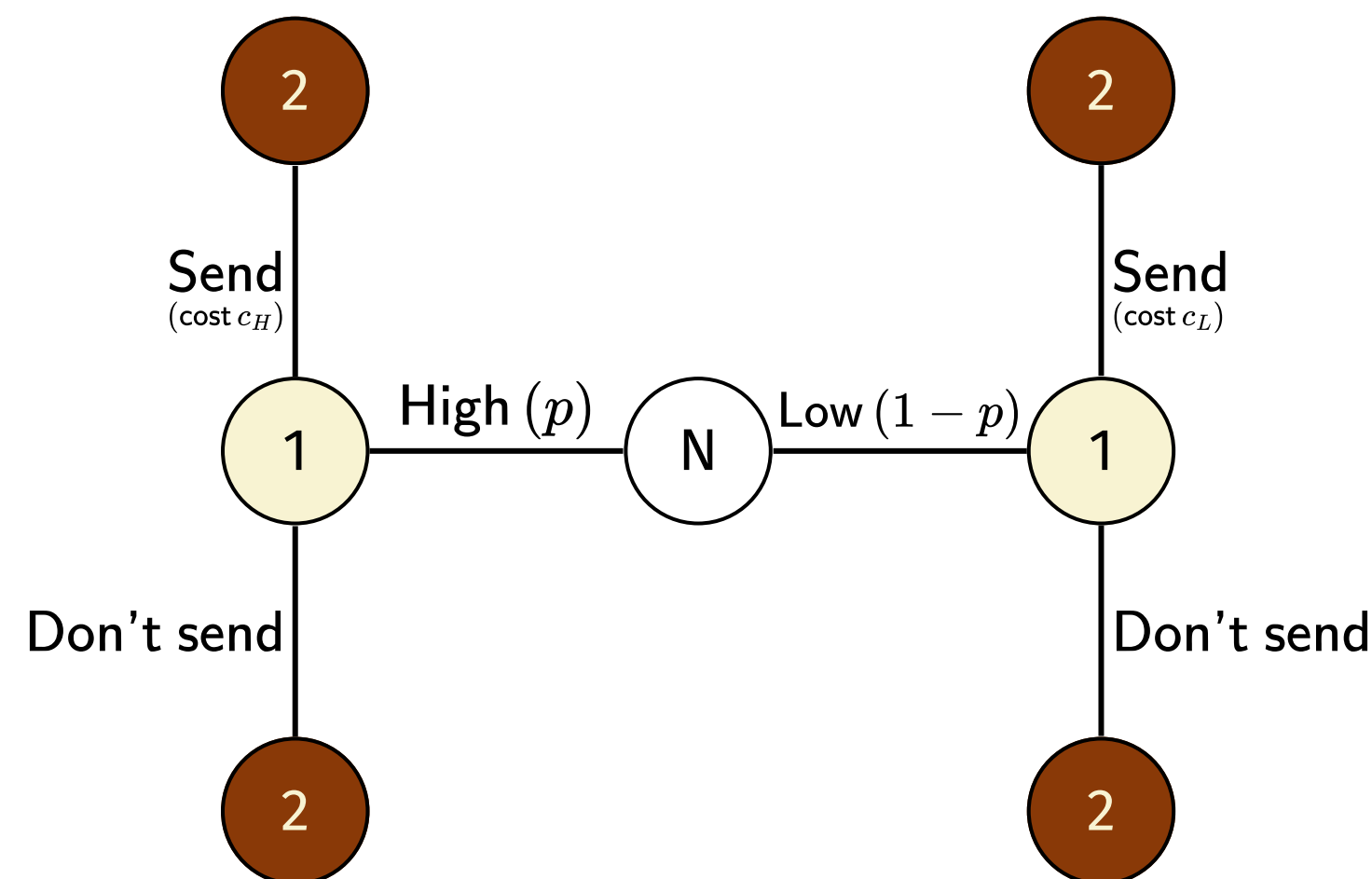


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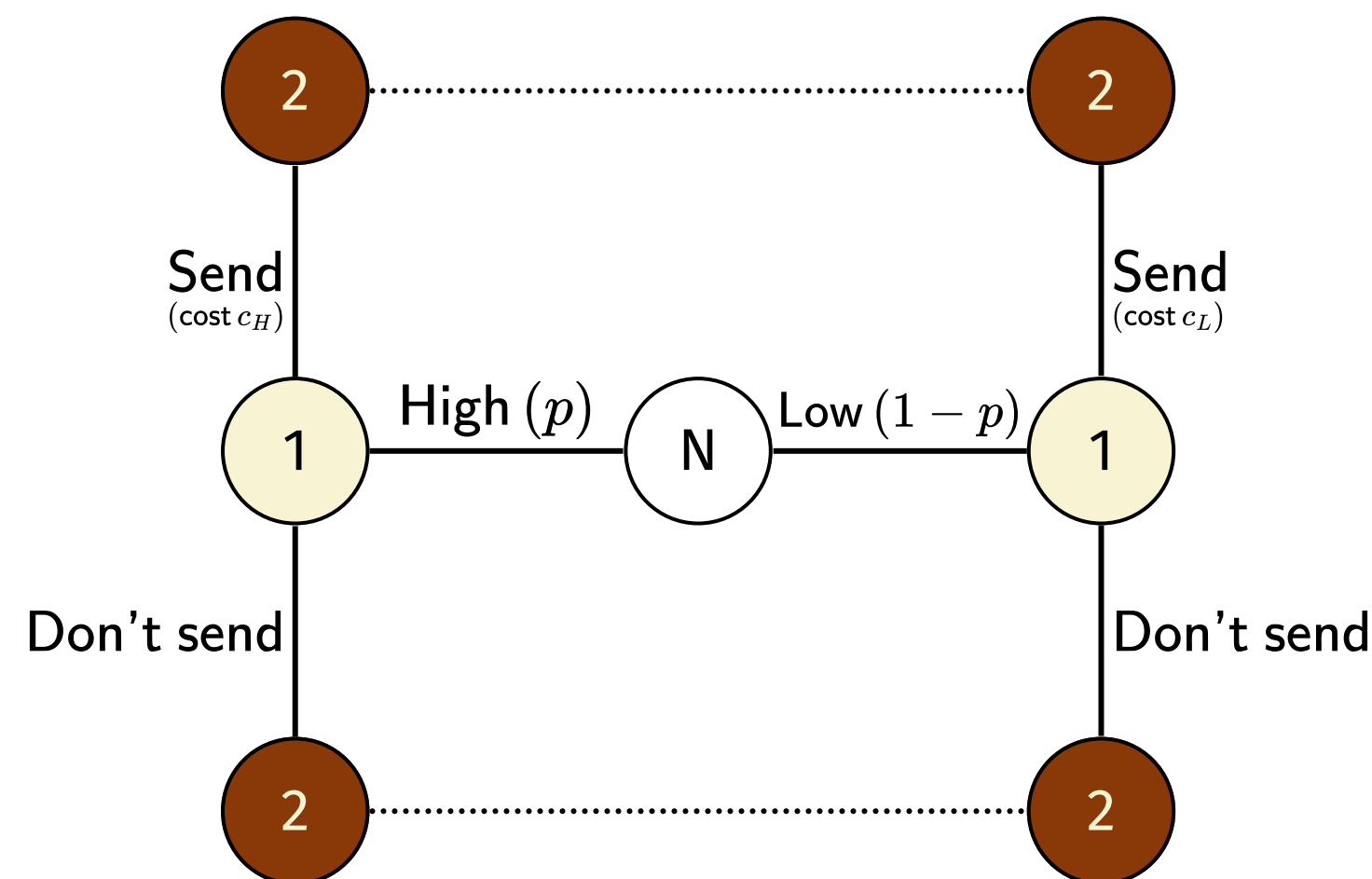
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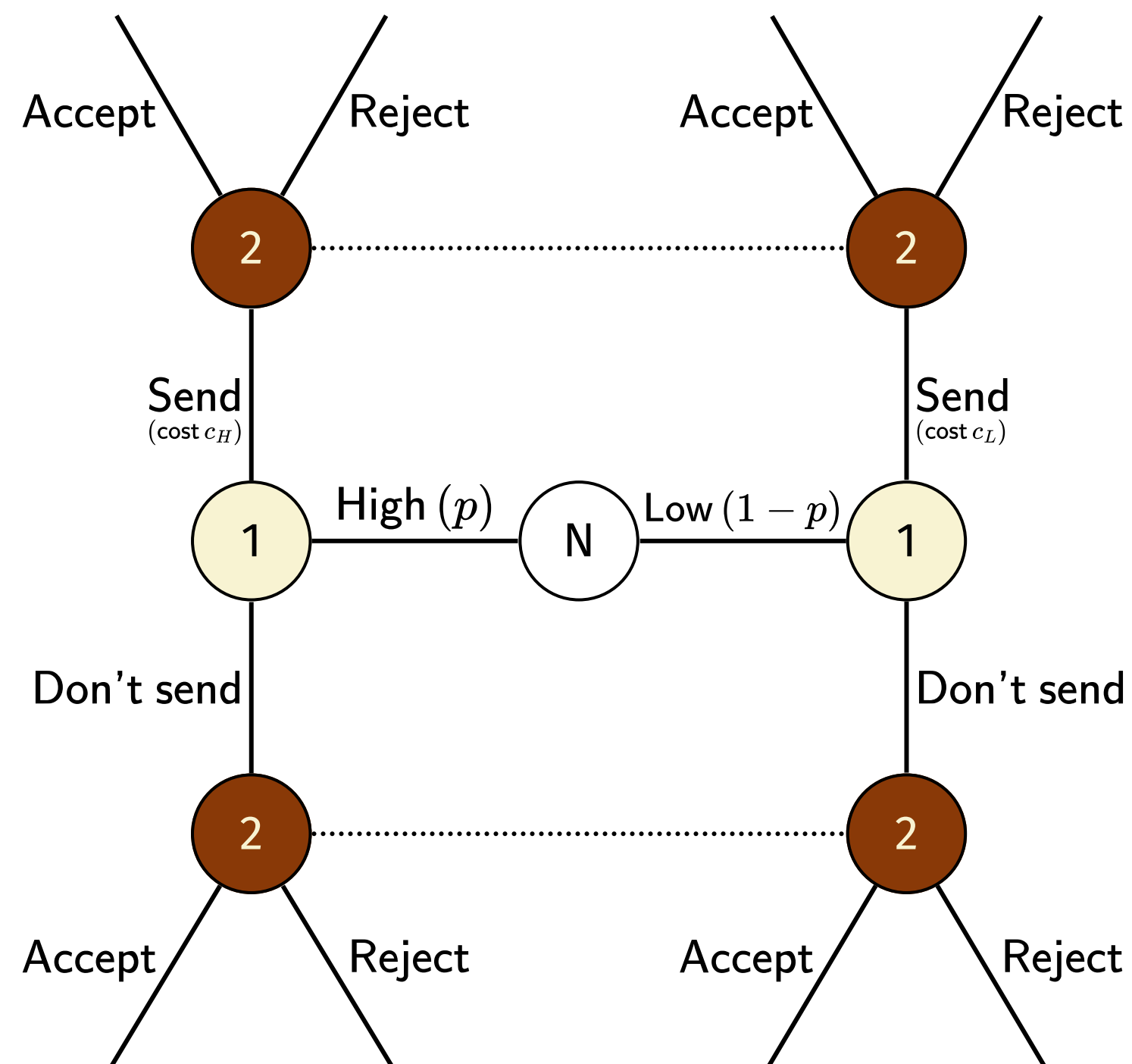
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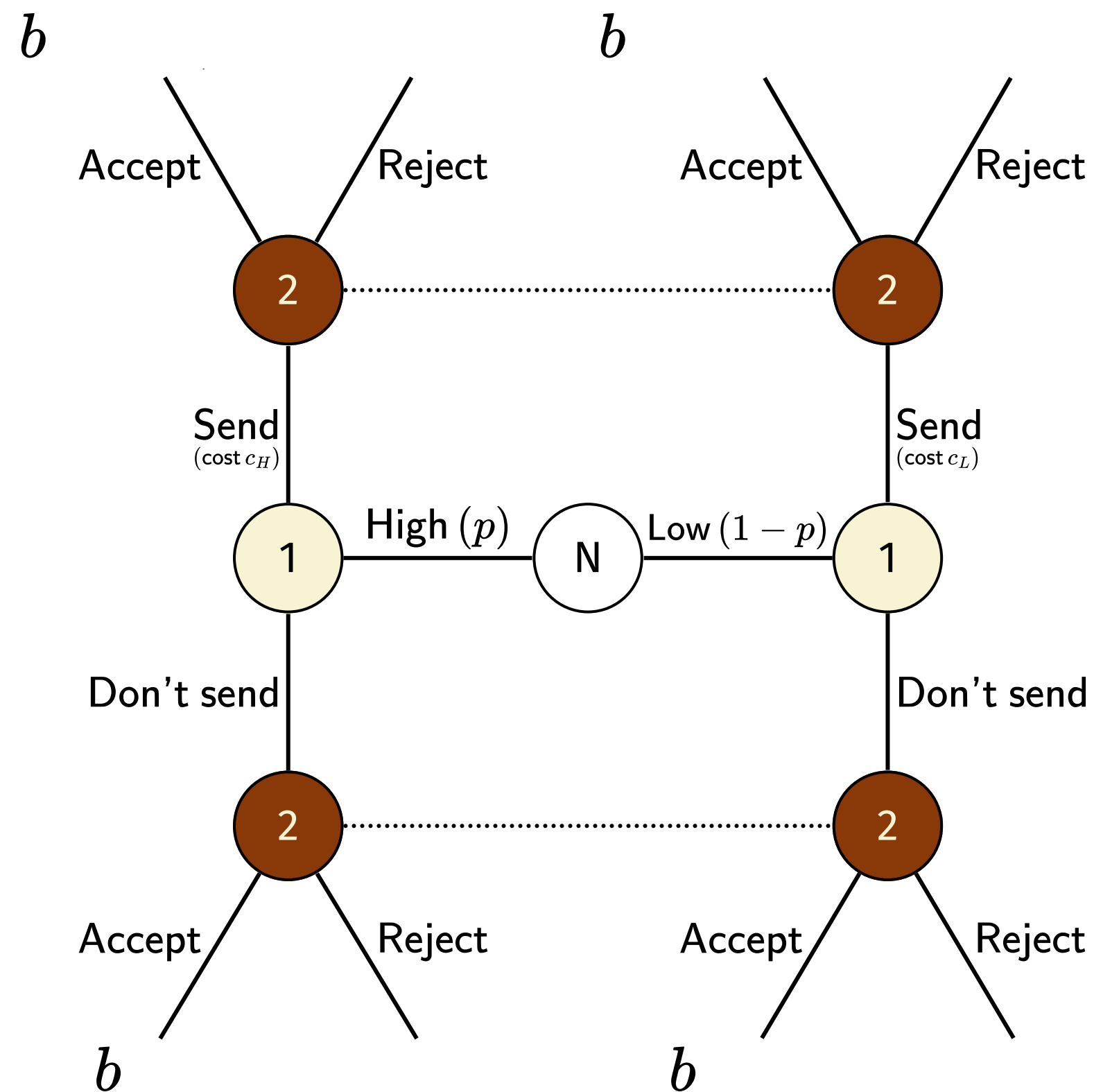
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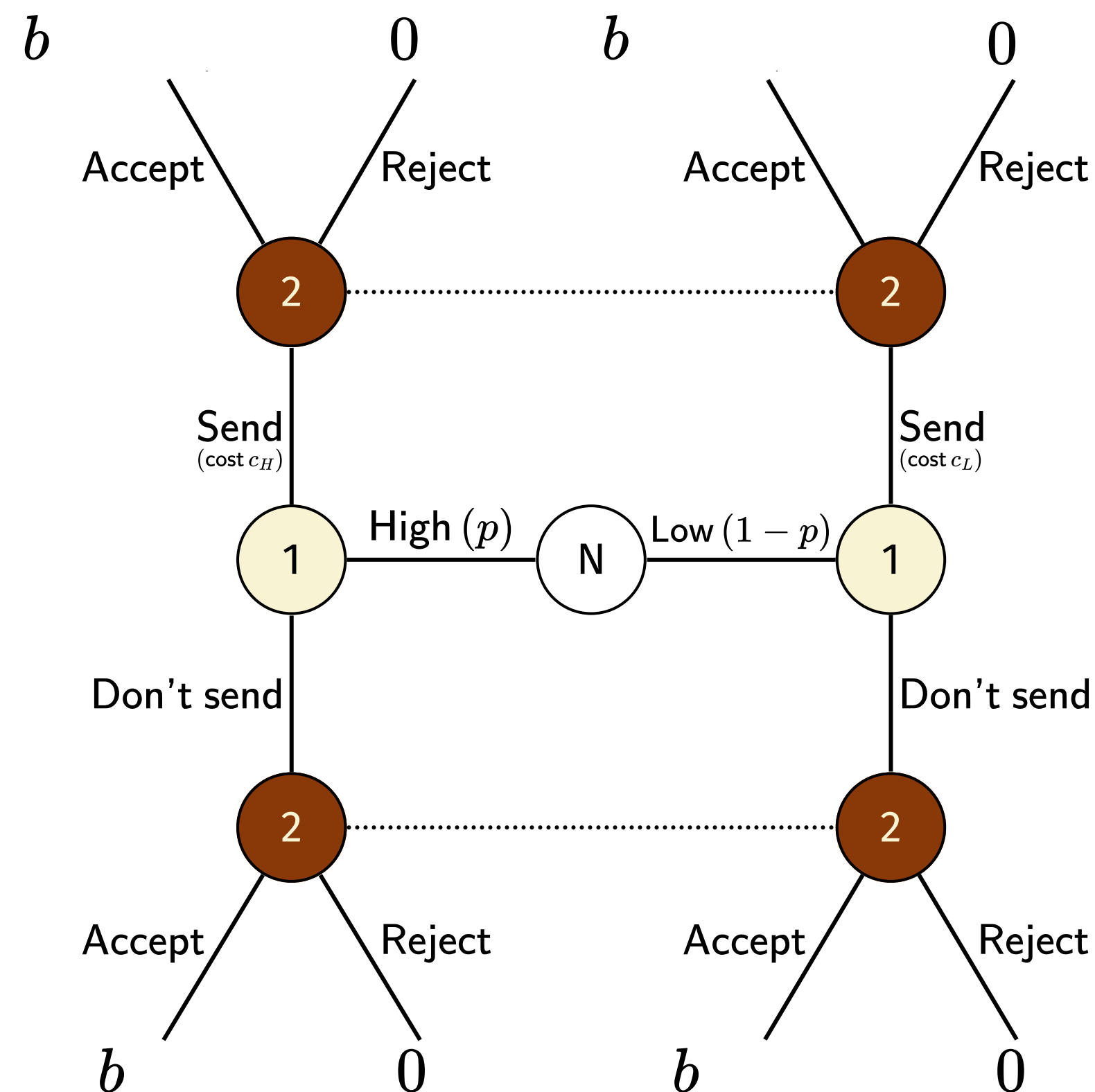
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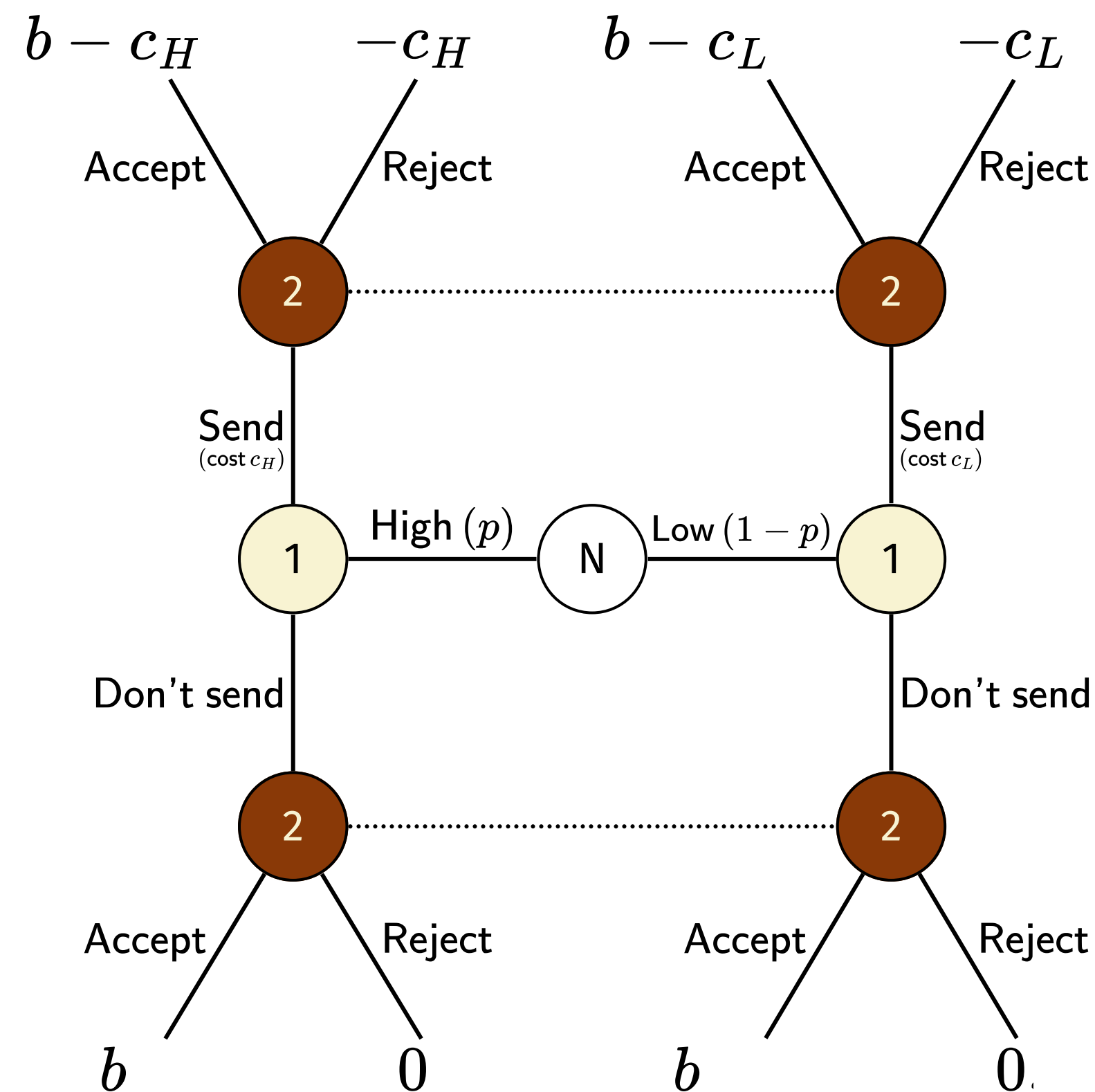
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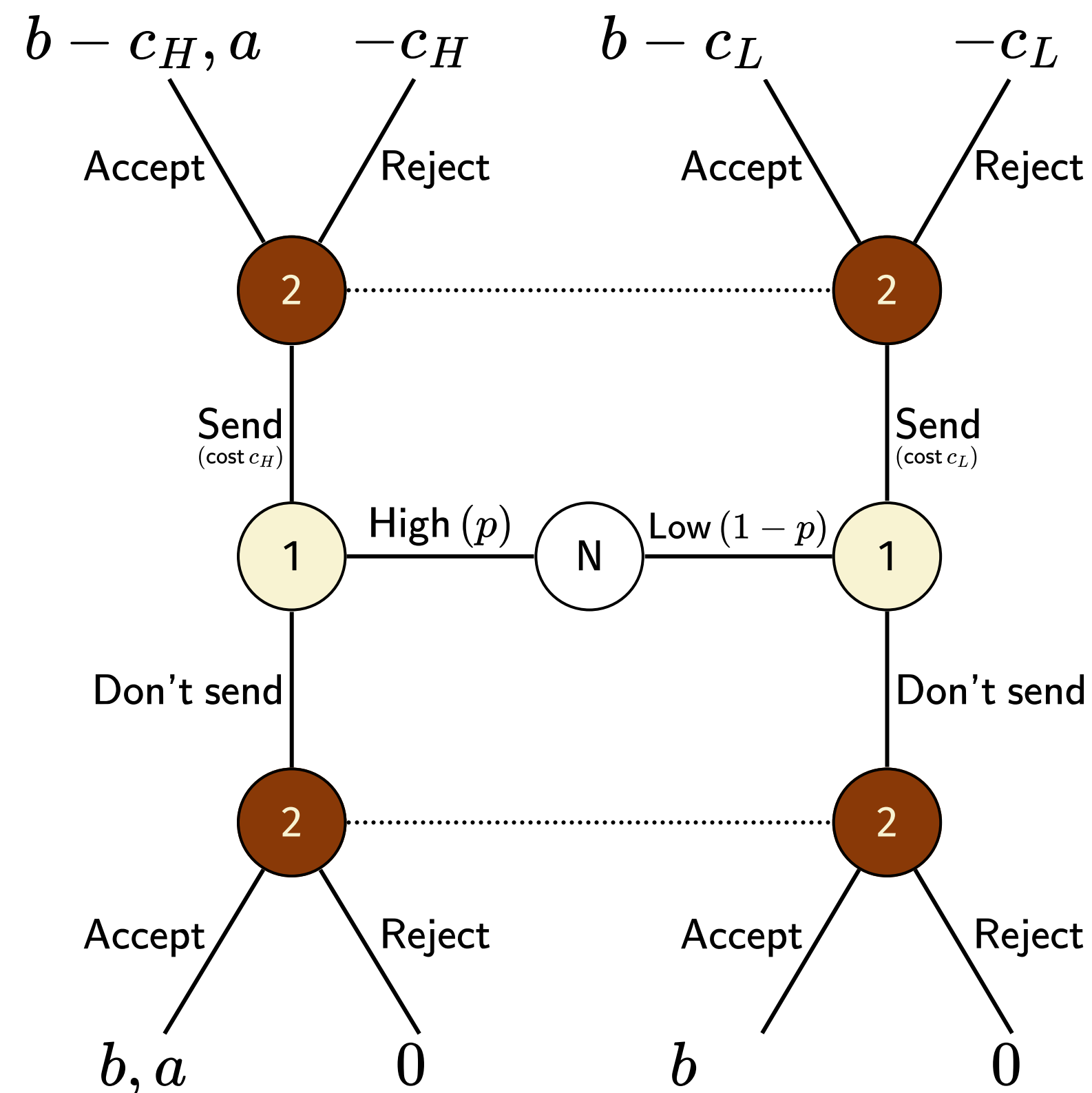
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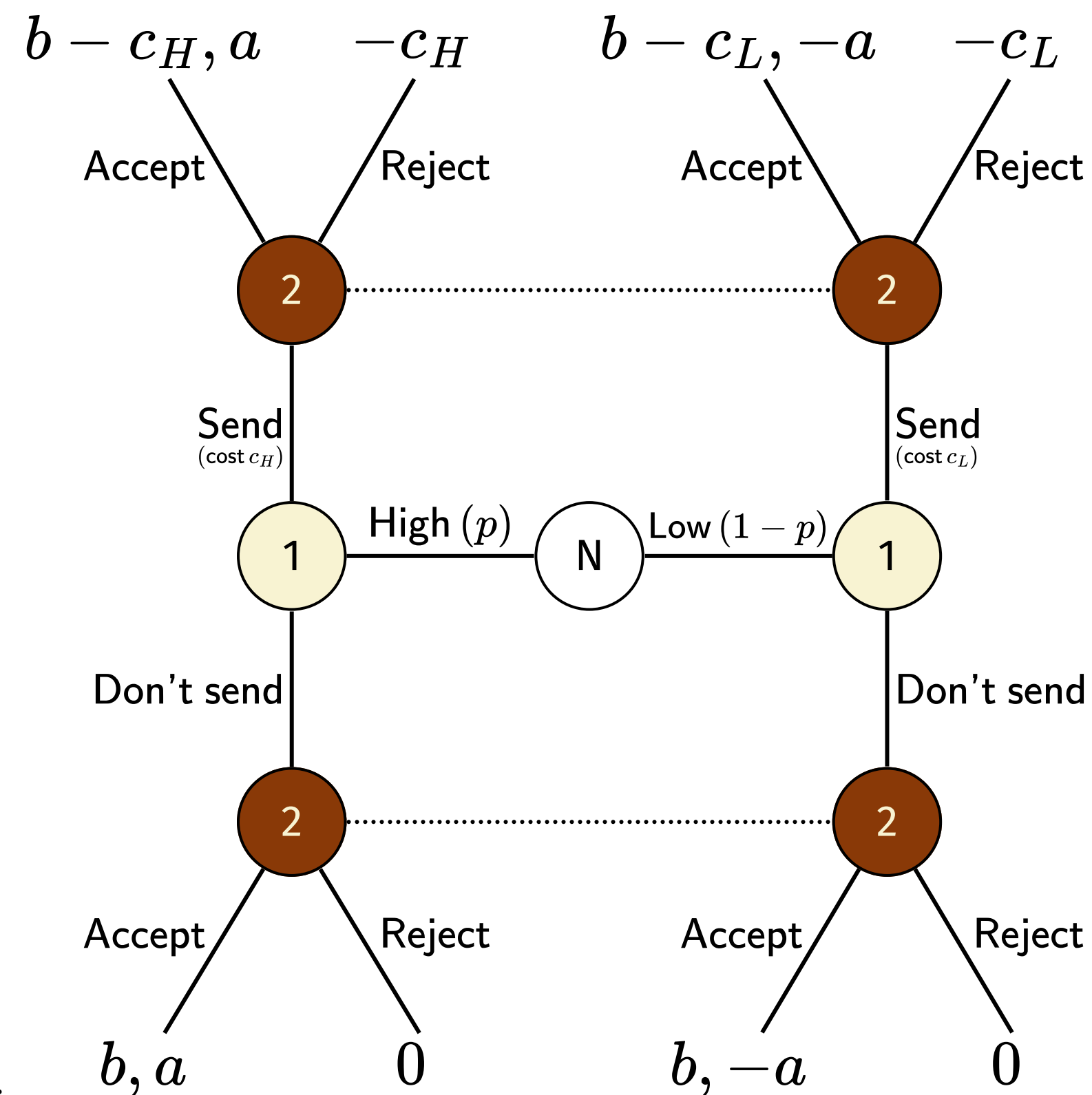
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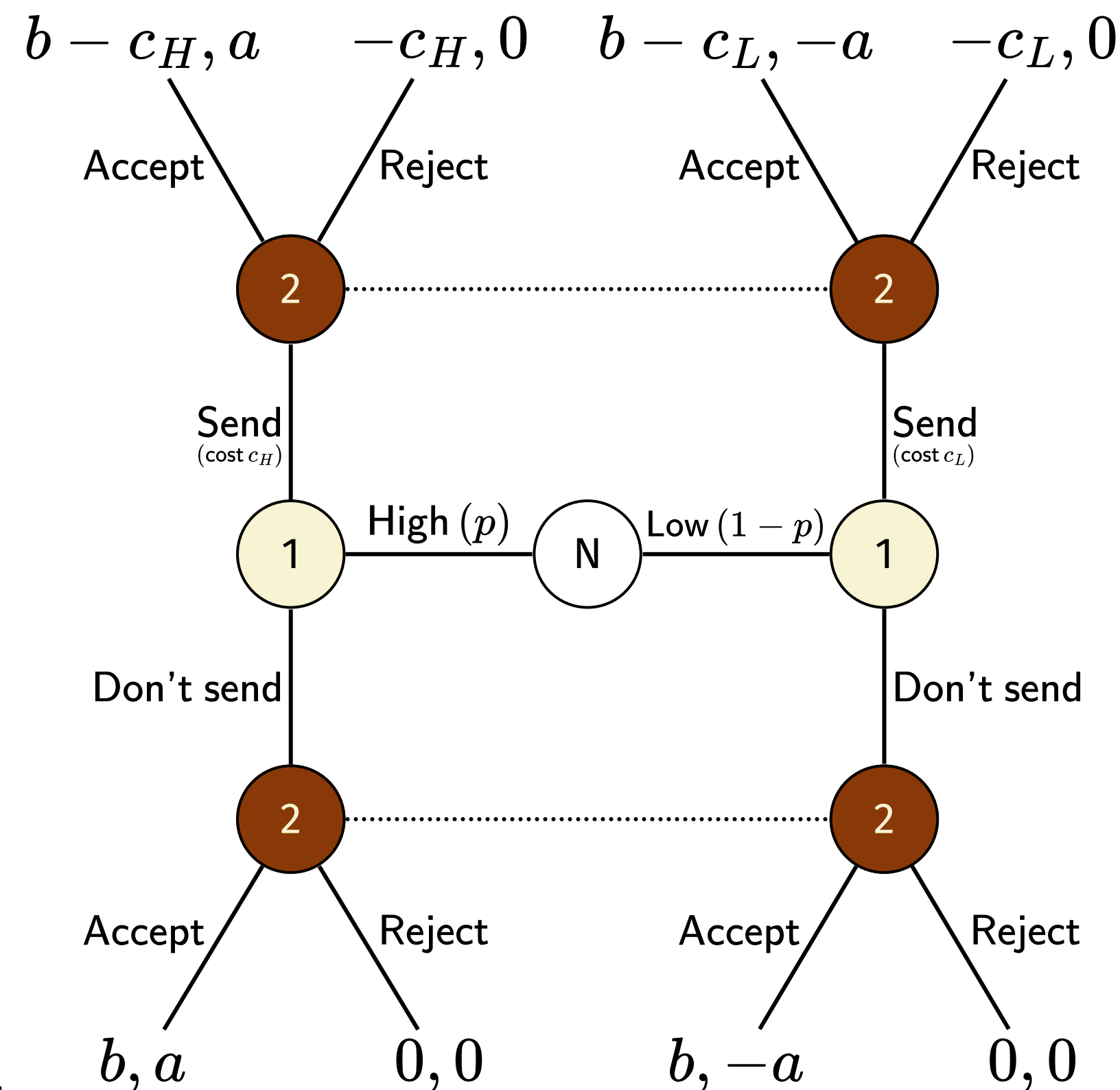
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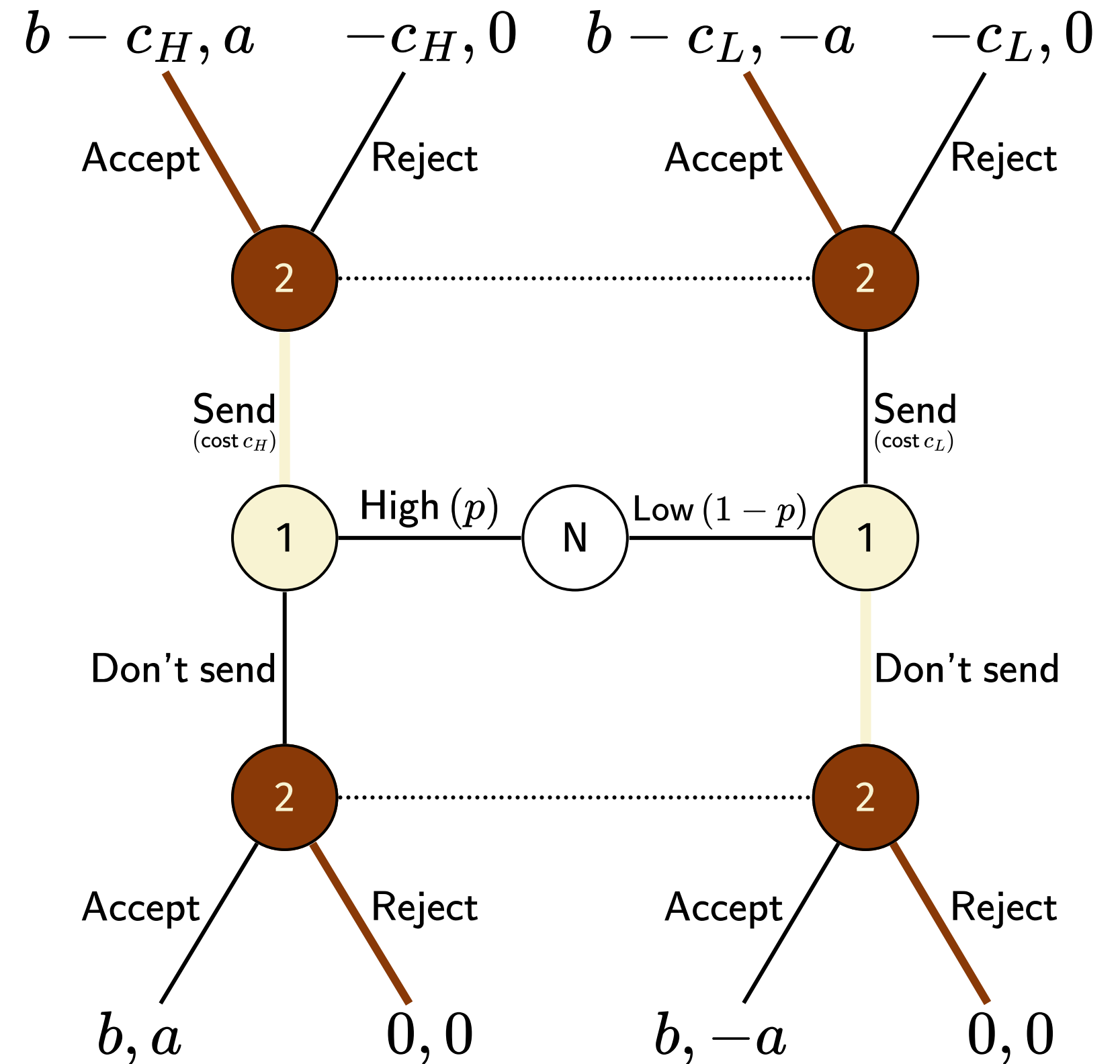
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# SEPARATING EQUILIBRIA

Player 1 sends the signal iff they are High type.

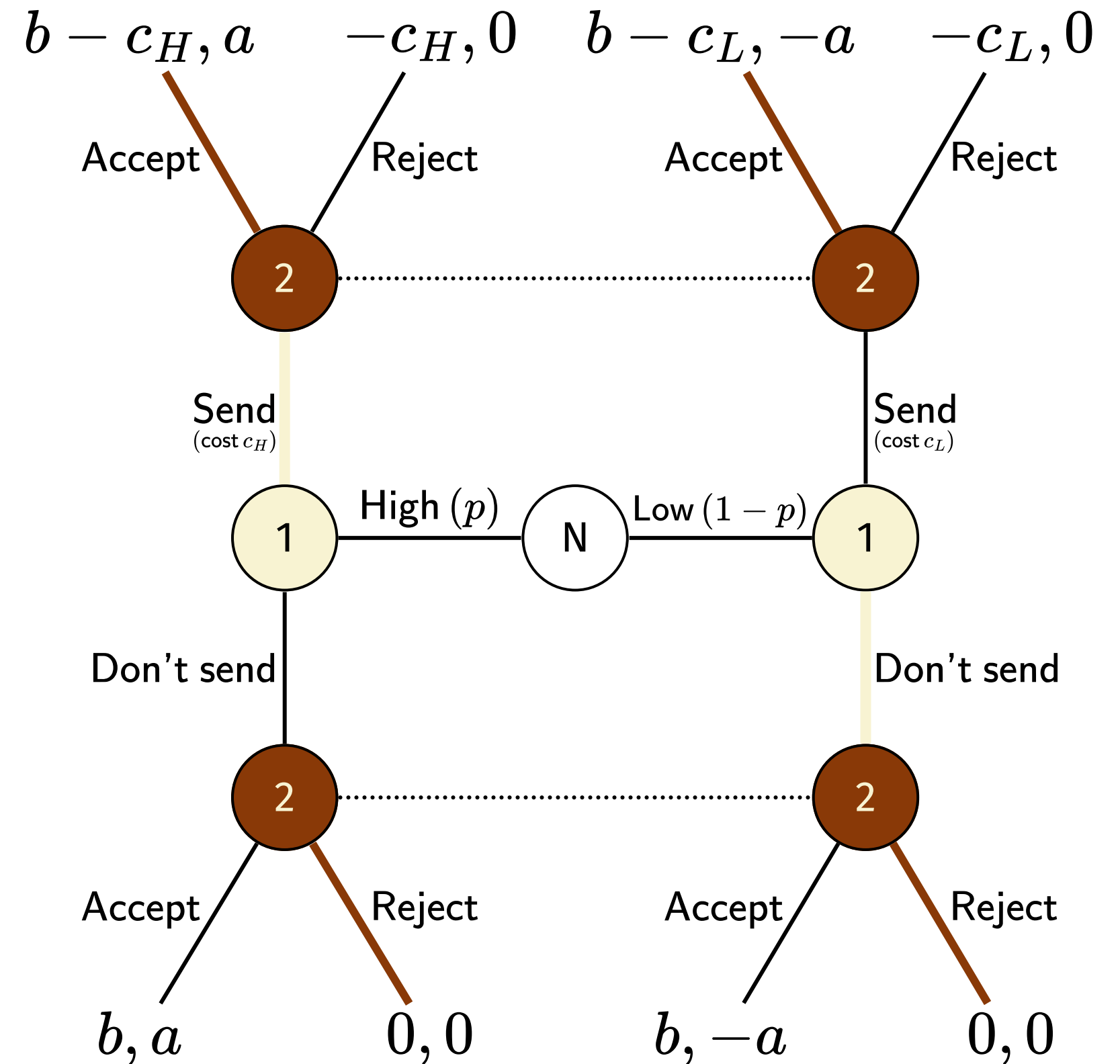
Player 2 accepts iff Player 1 sends the signal.



Is this an equilibrium? We have to check for deviations!

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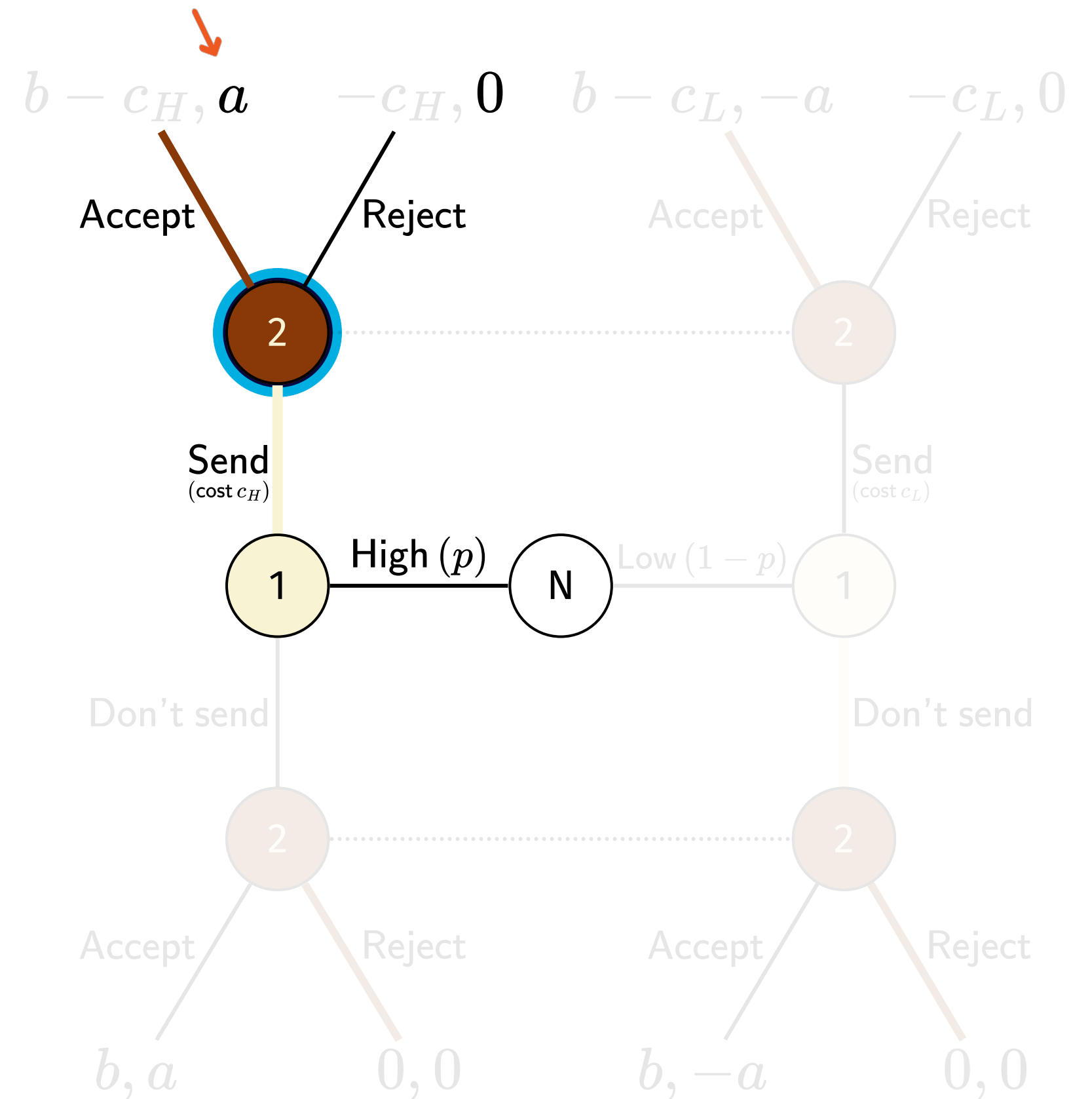
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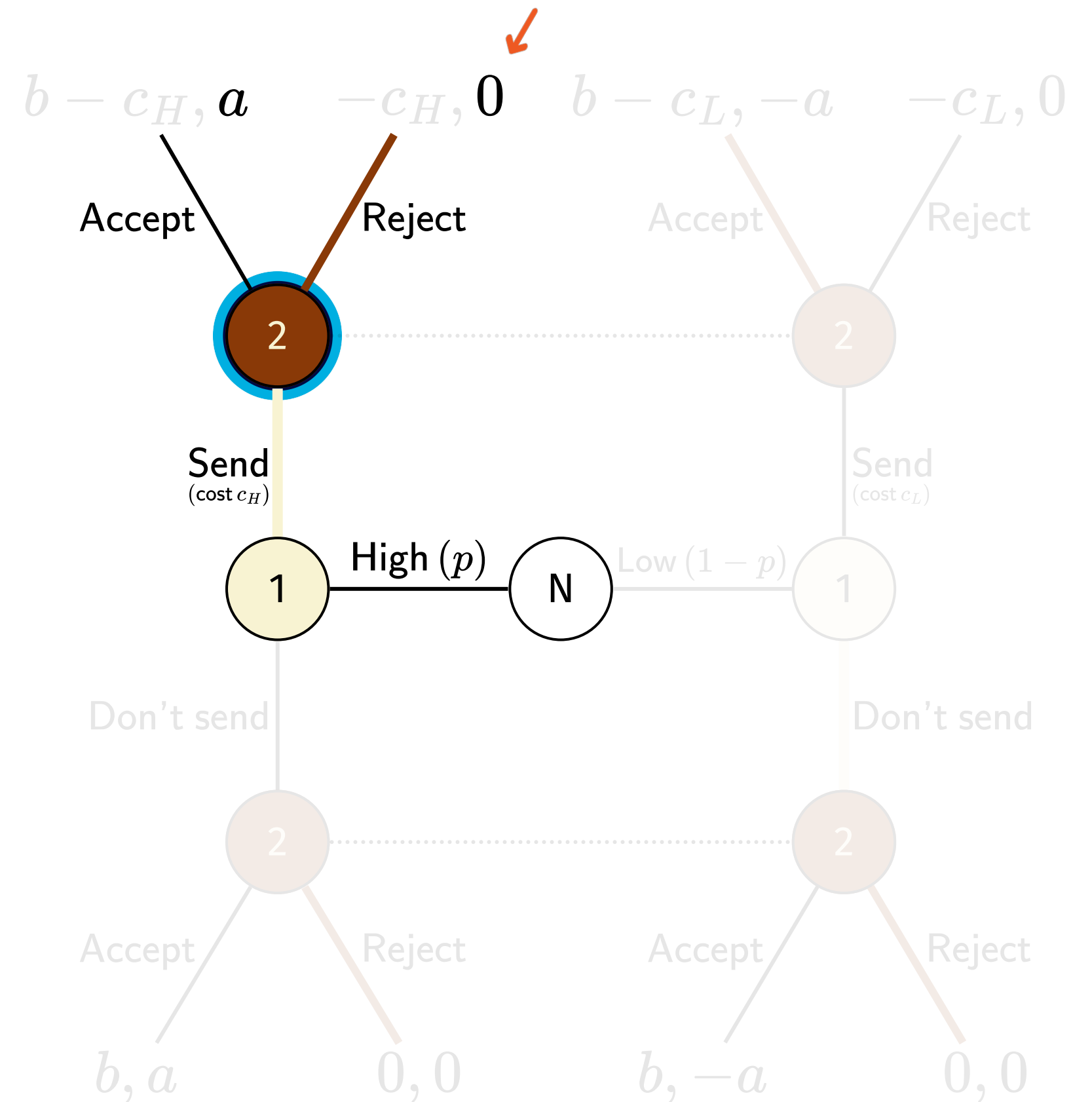
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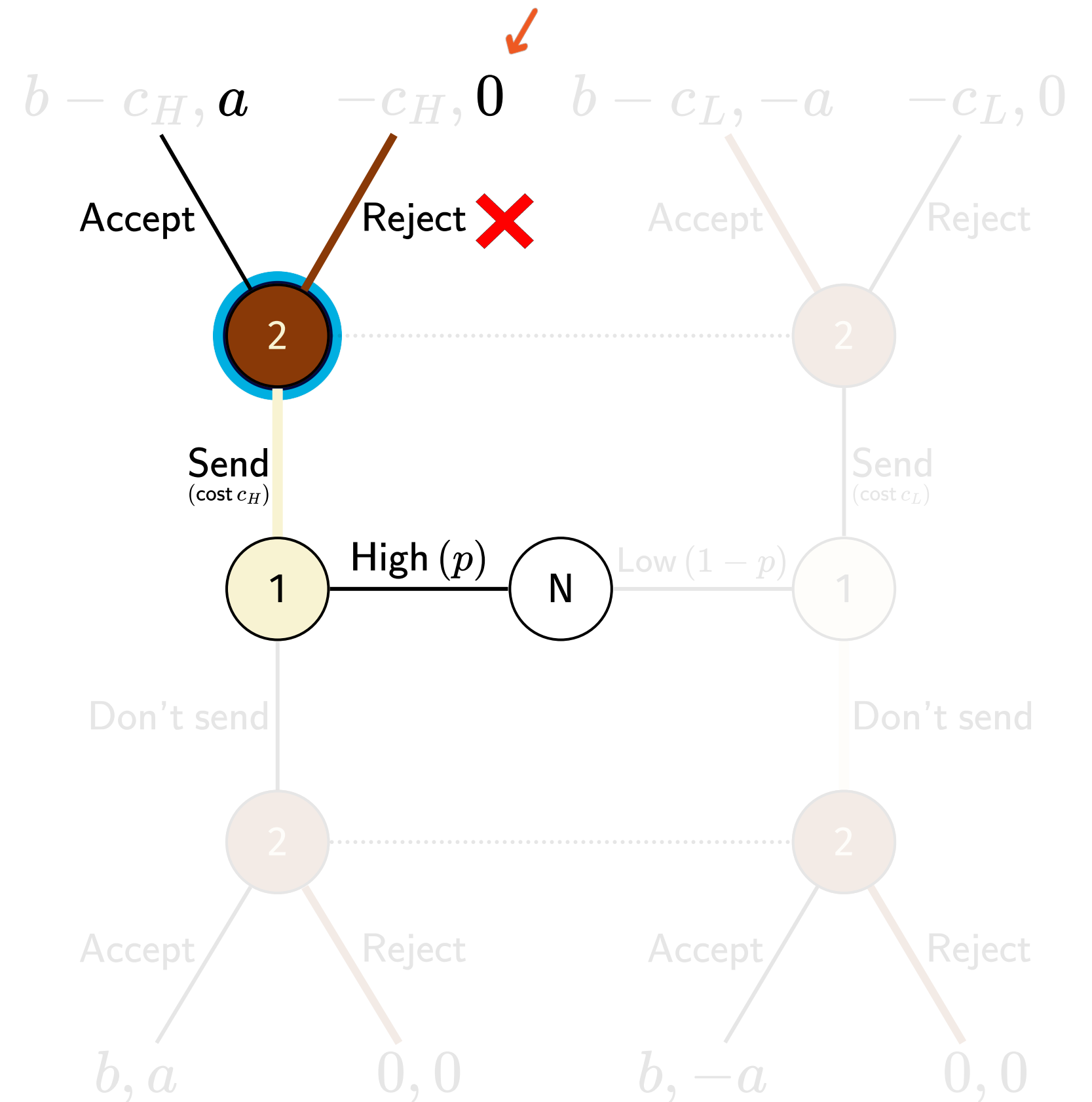
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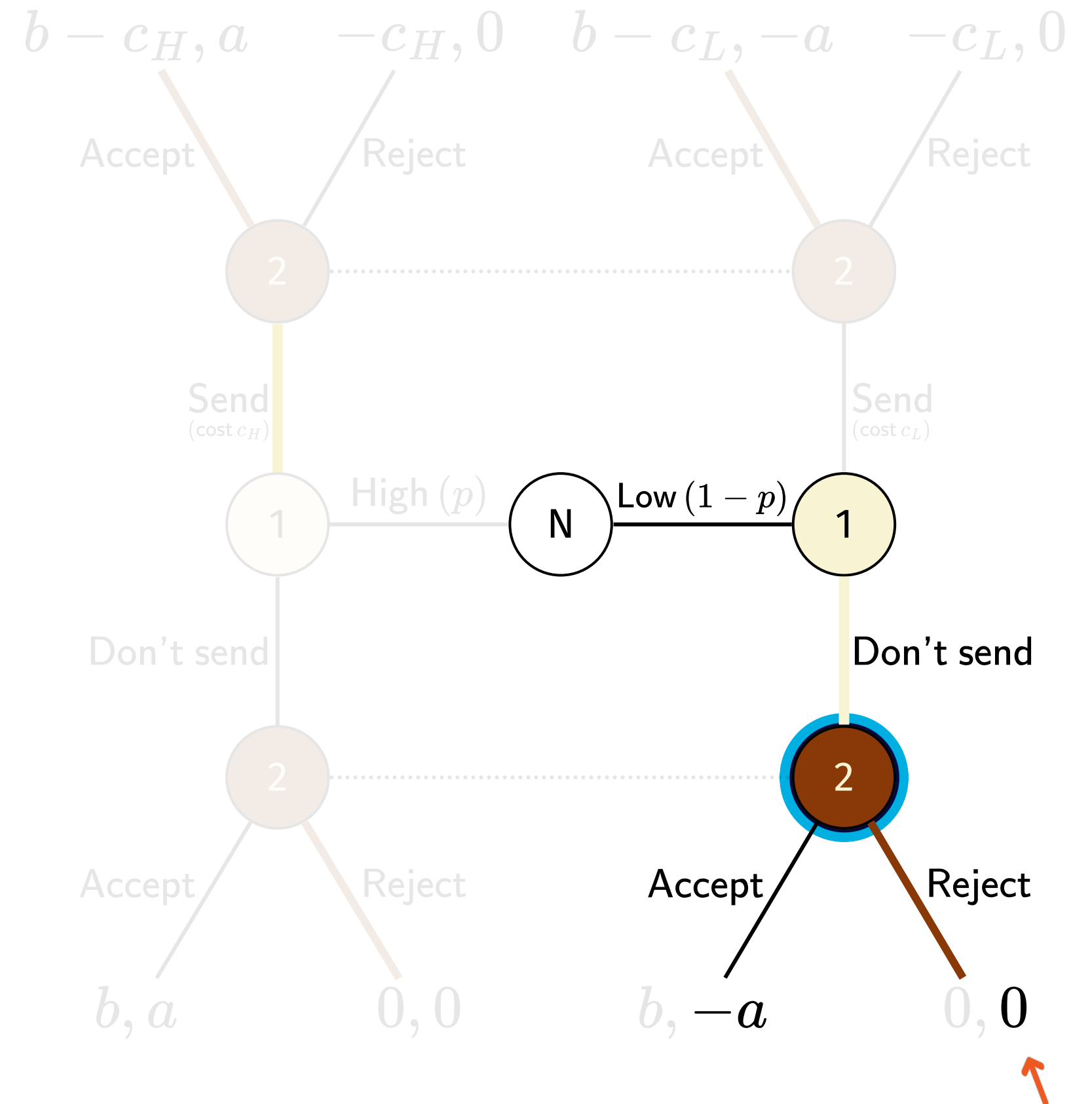
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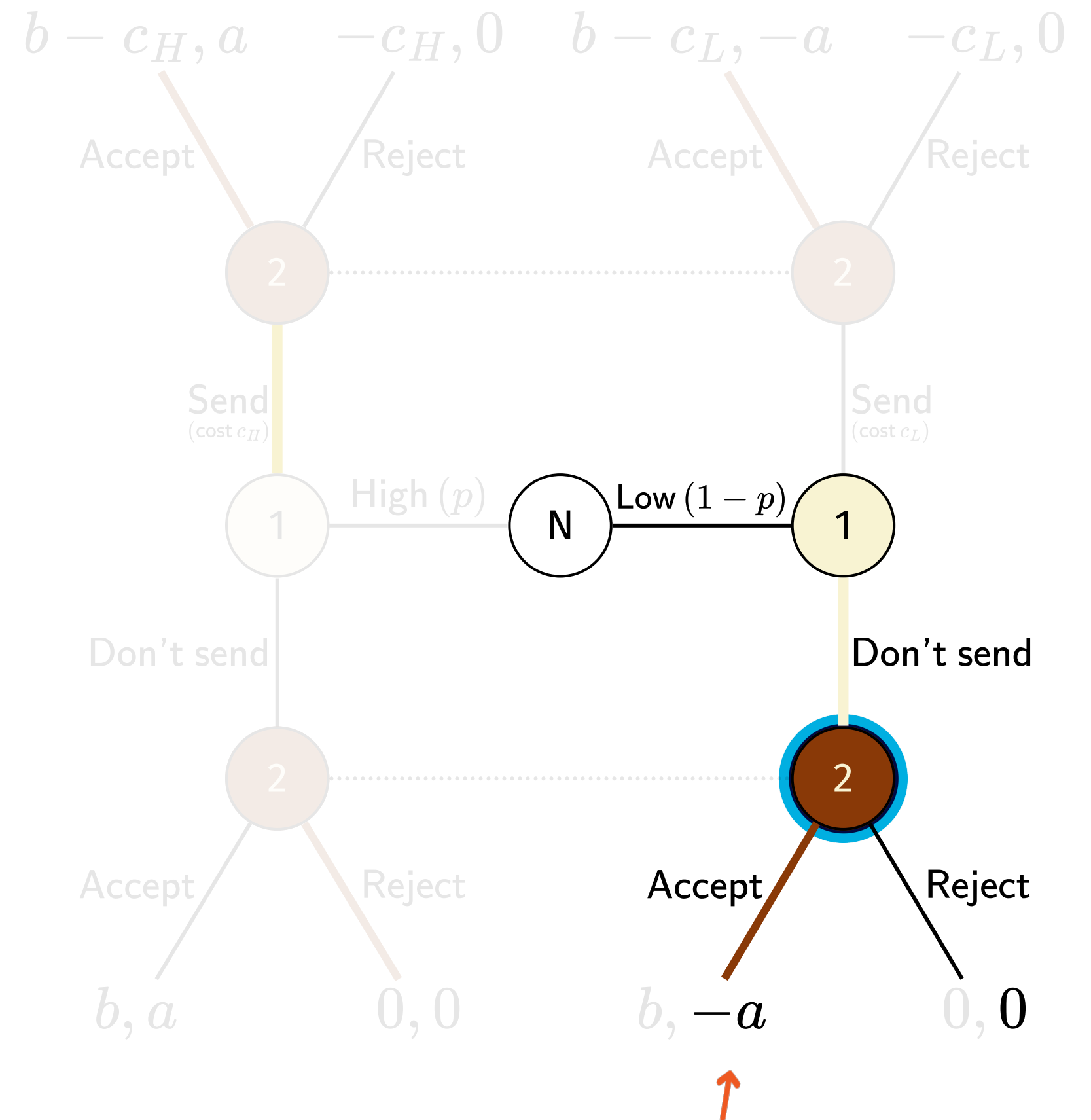
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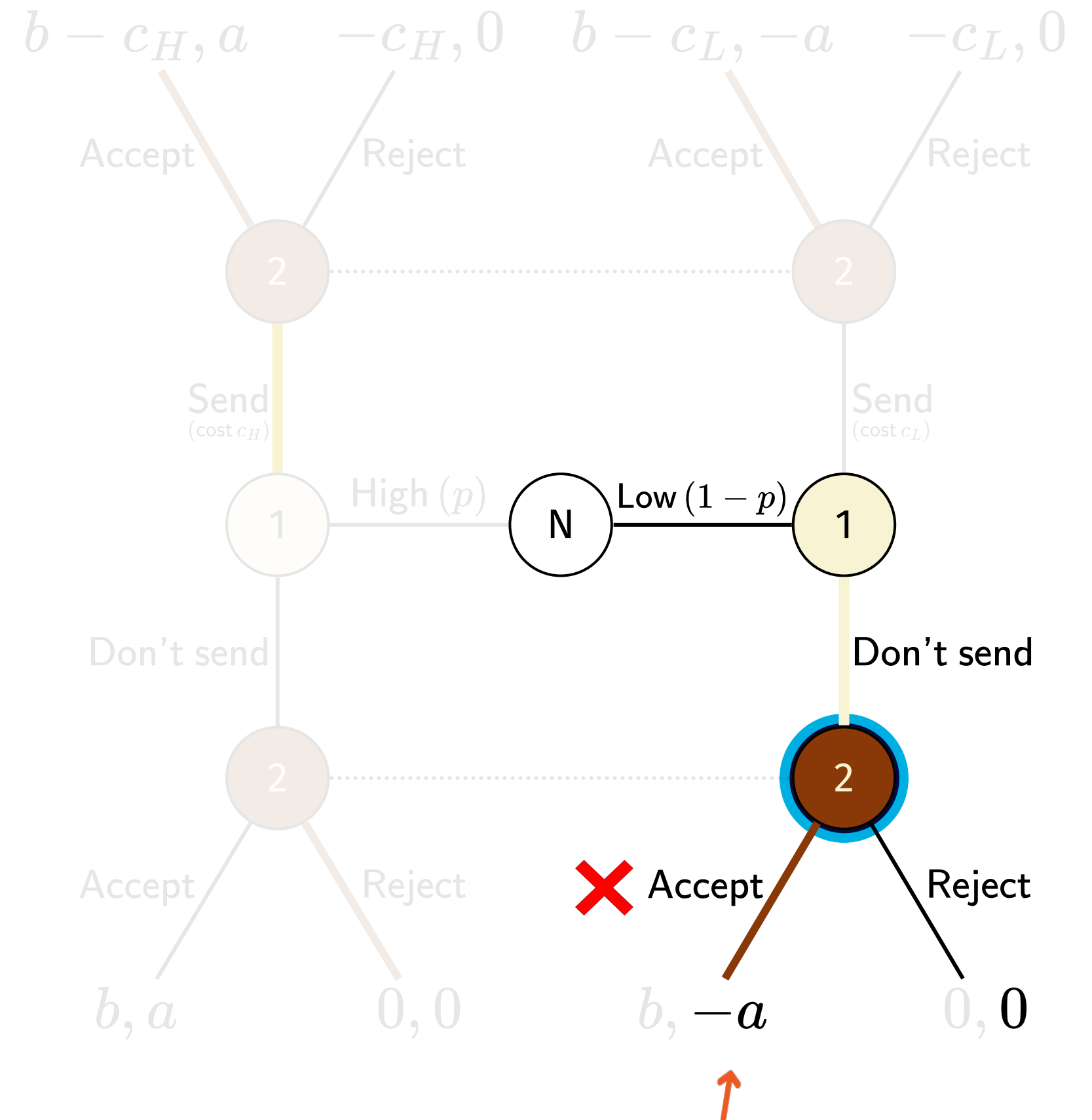
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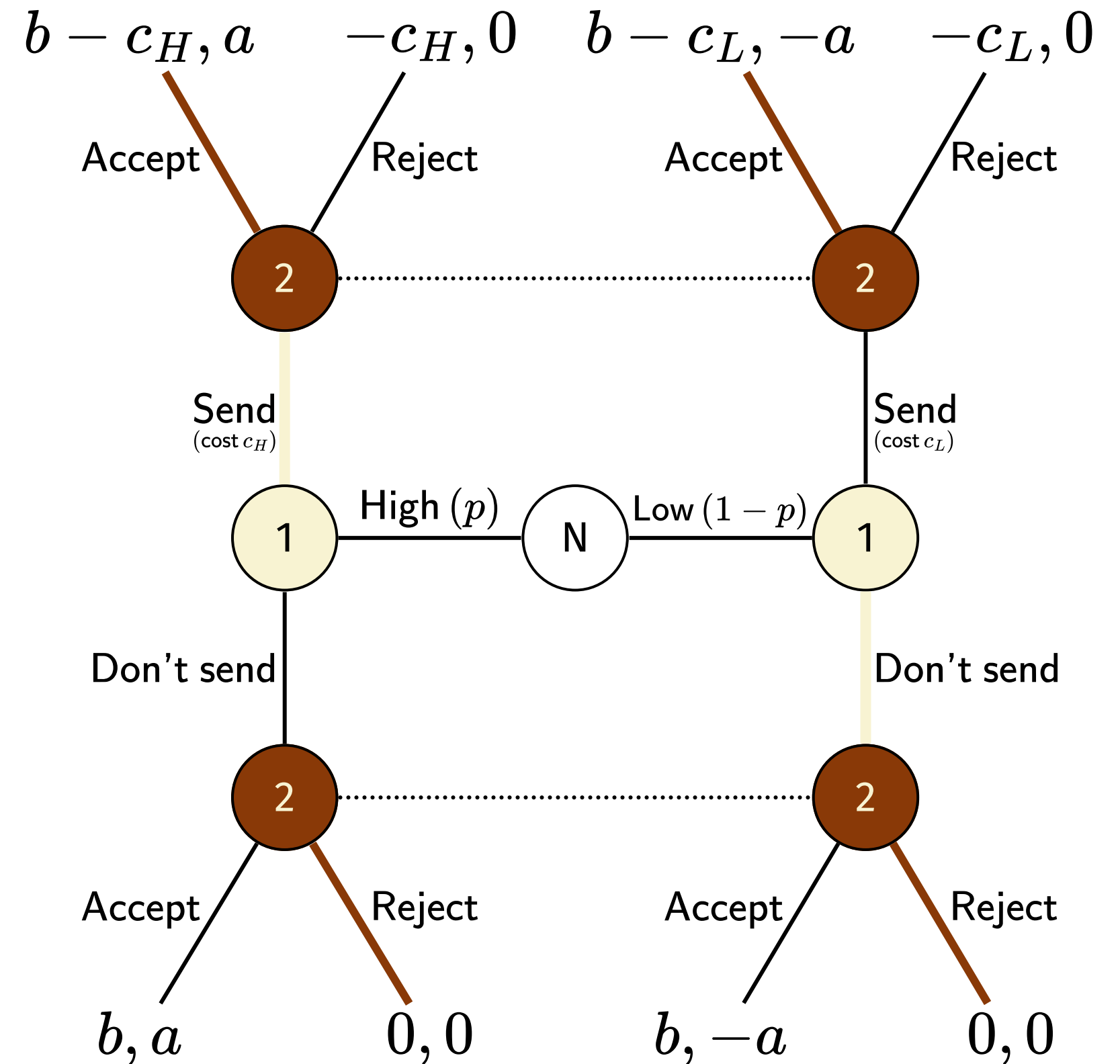


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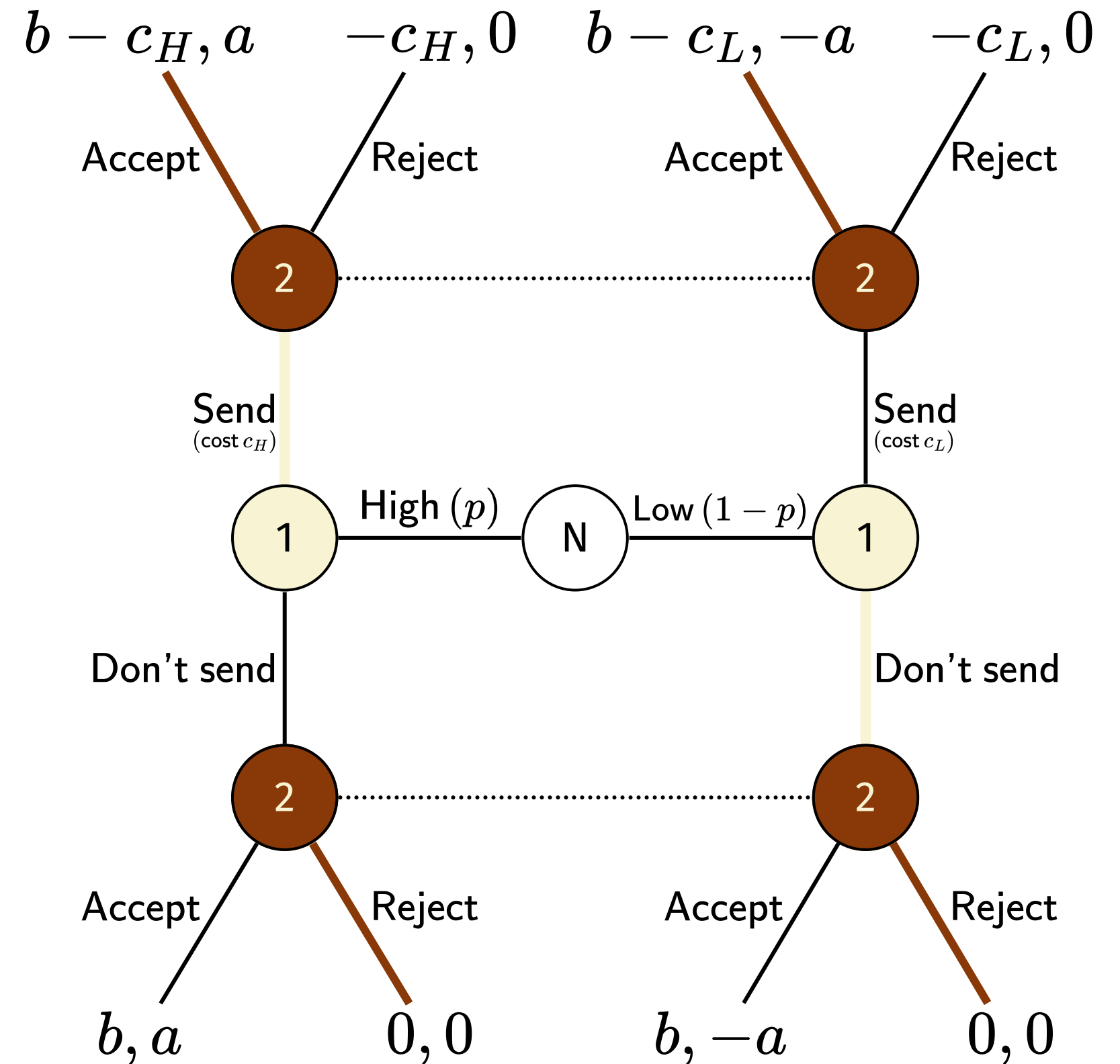
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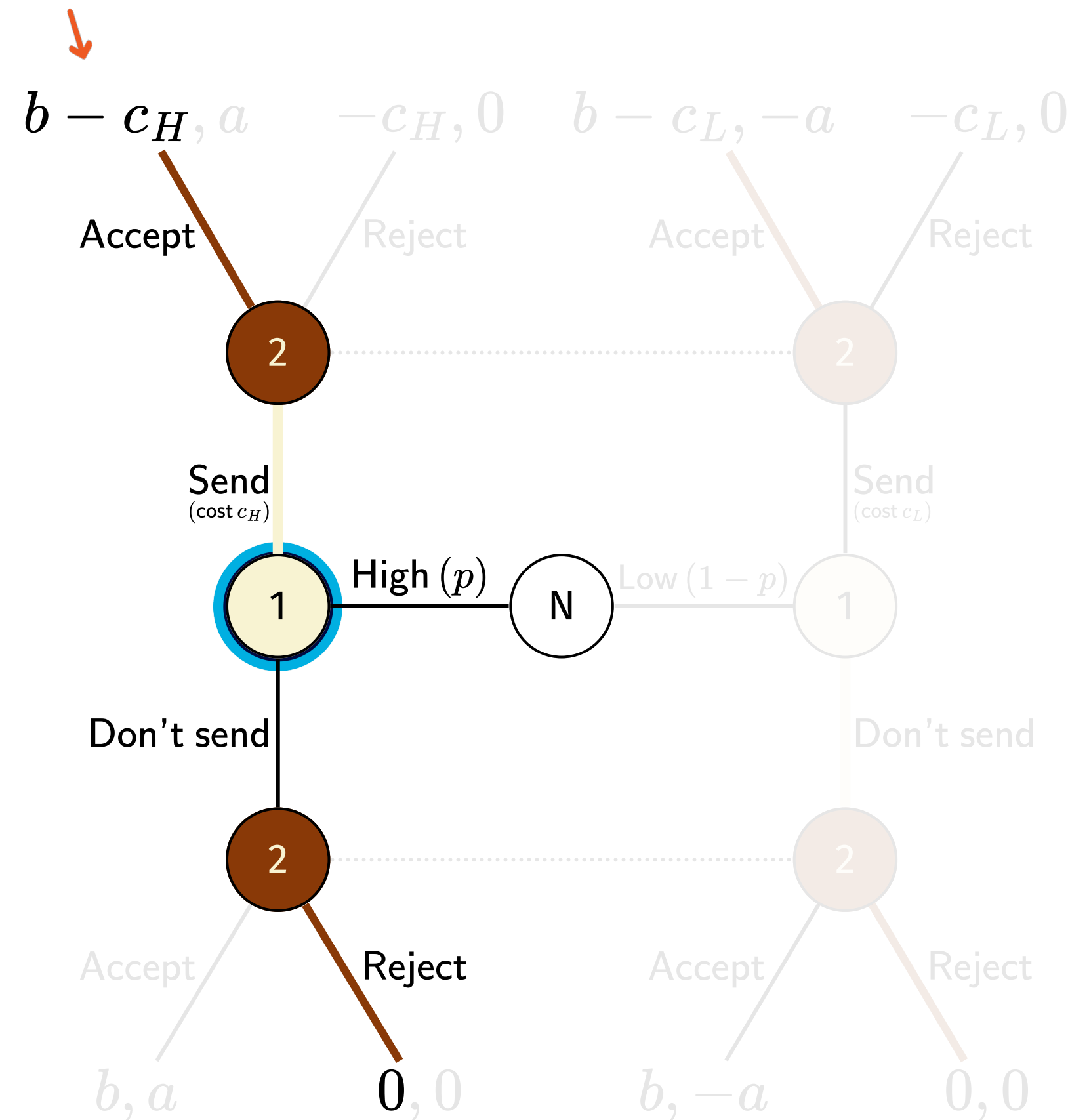
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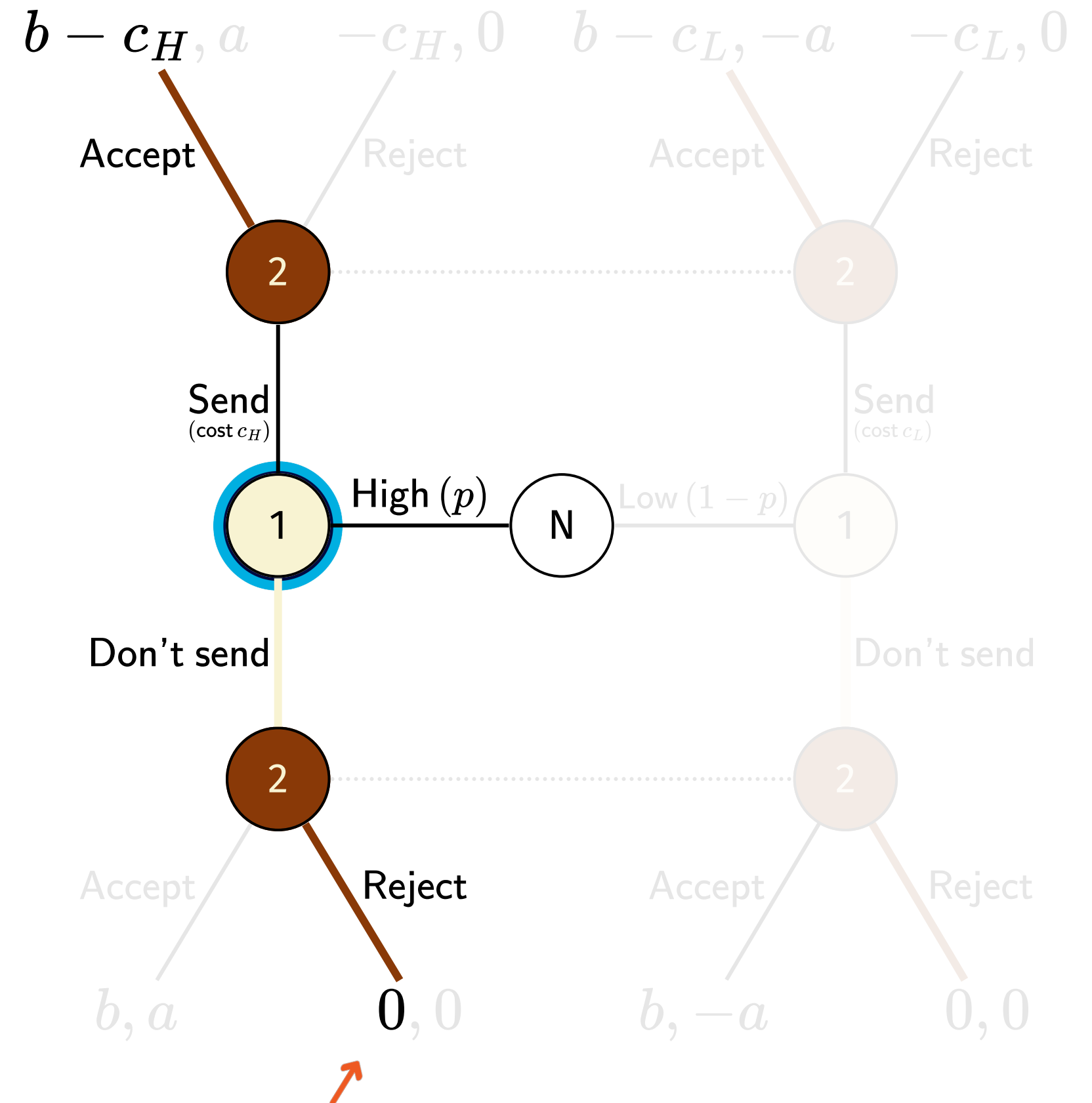
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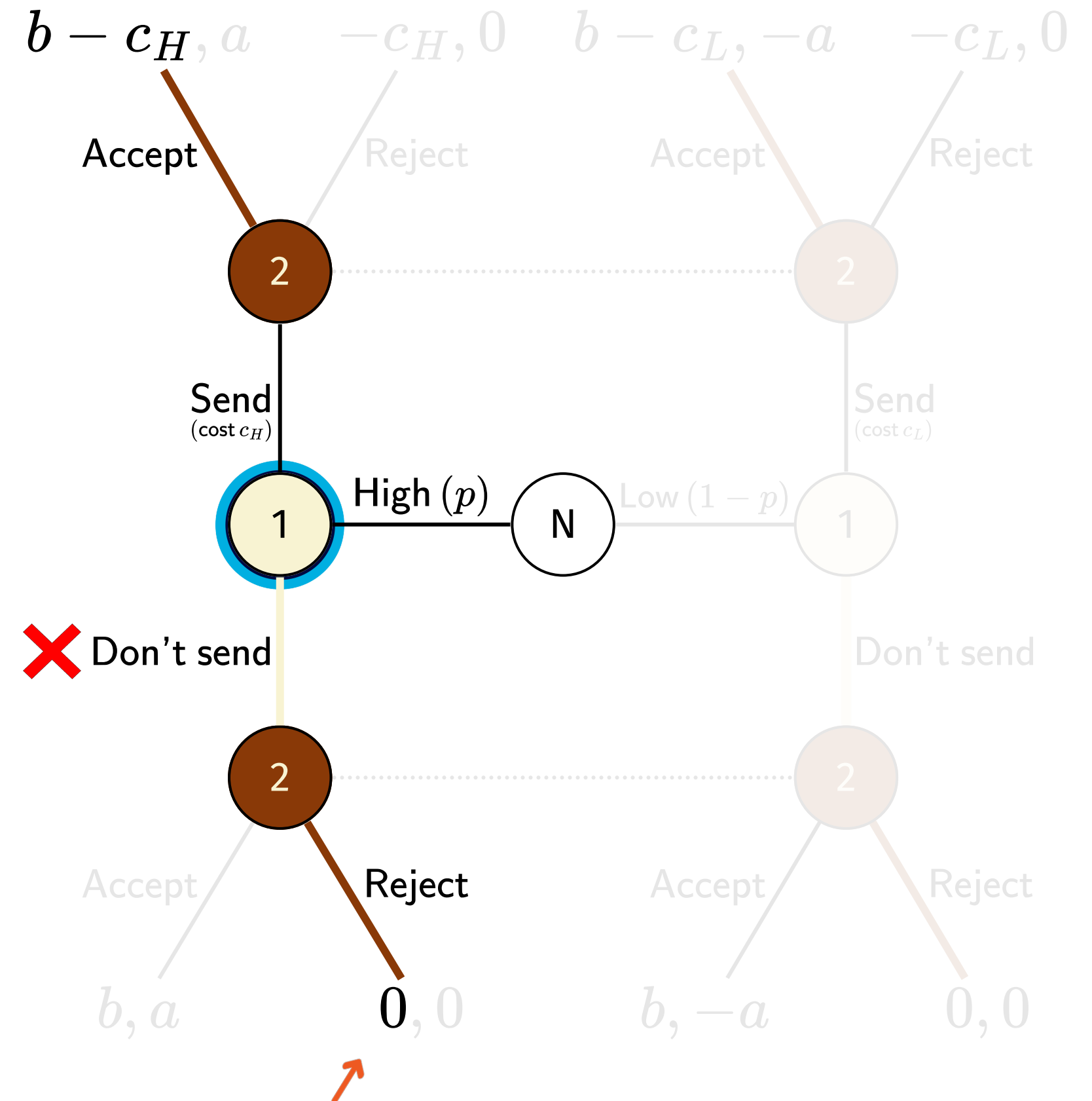
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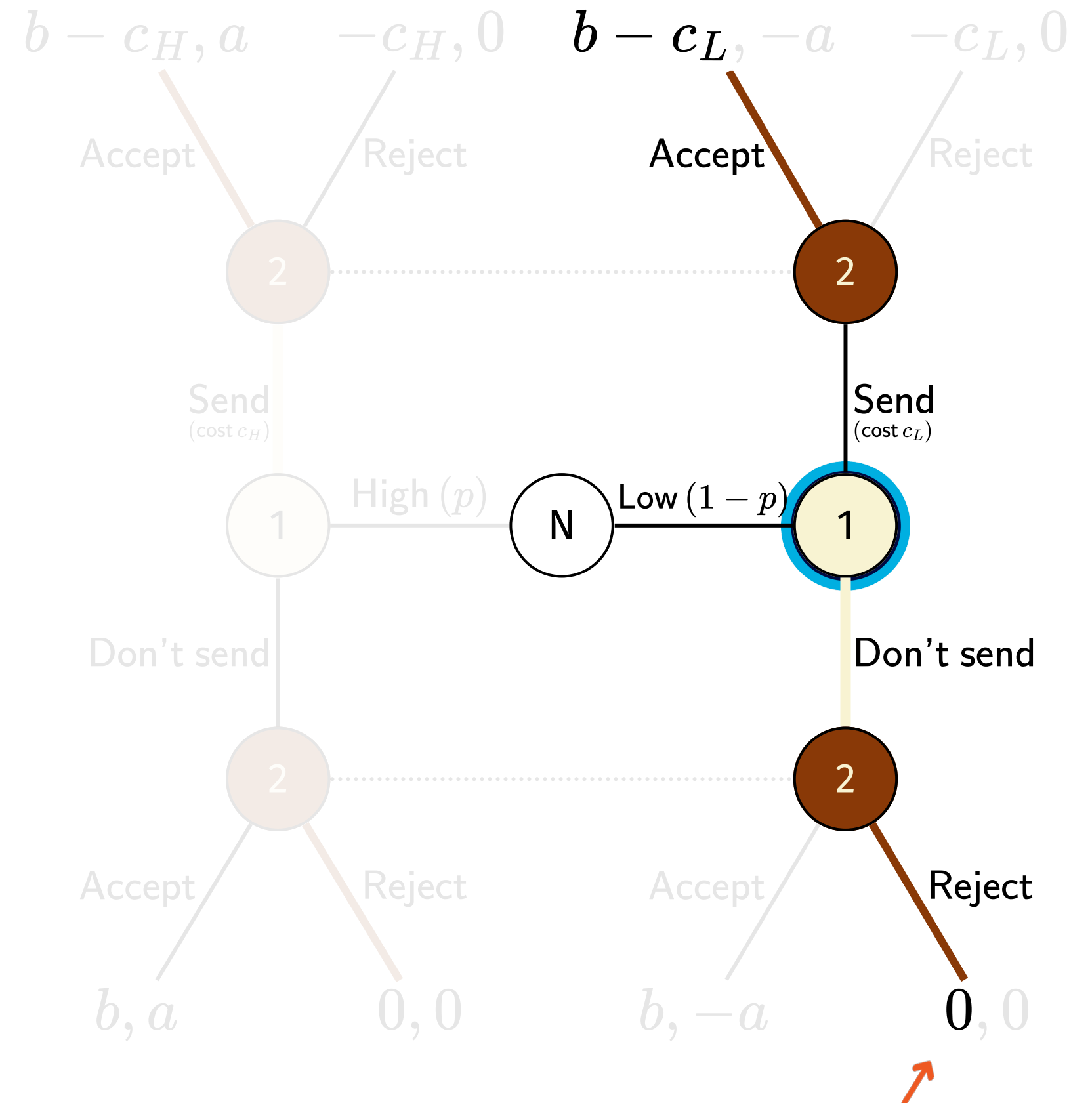
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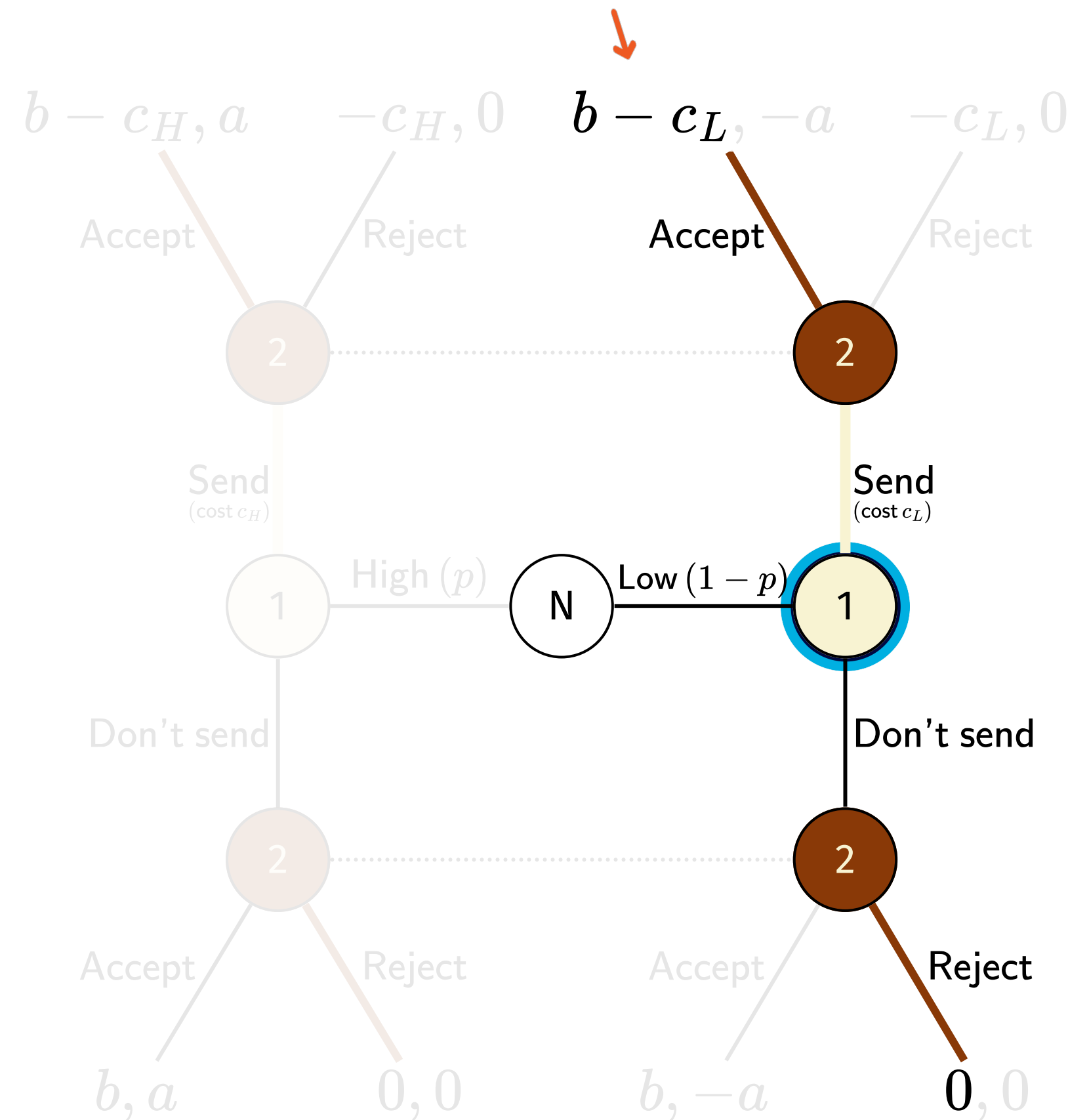
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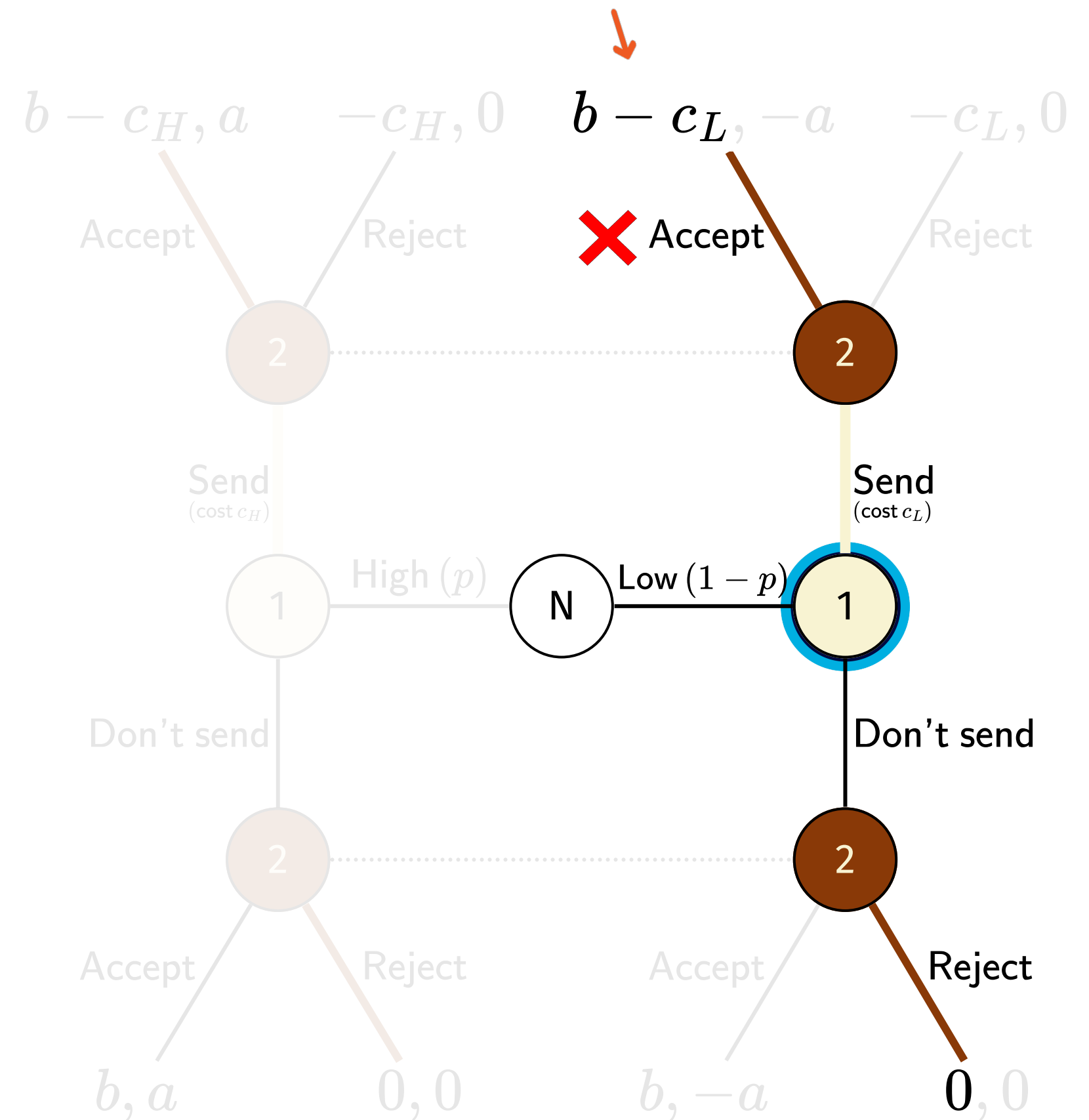
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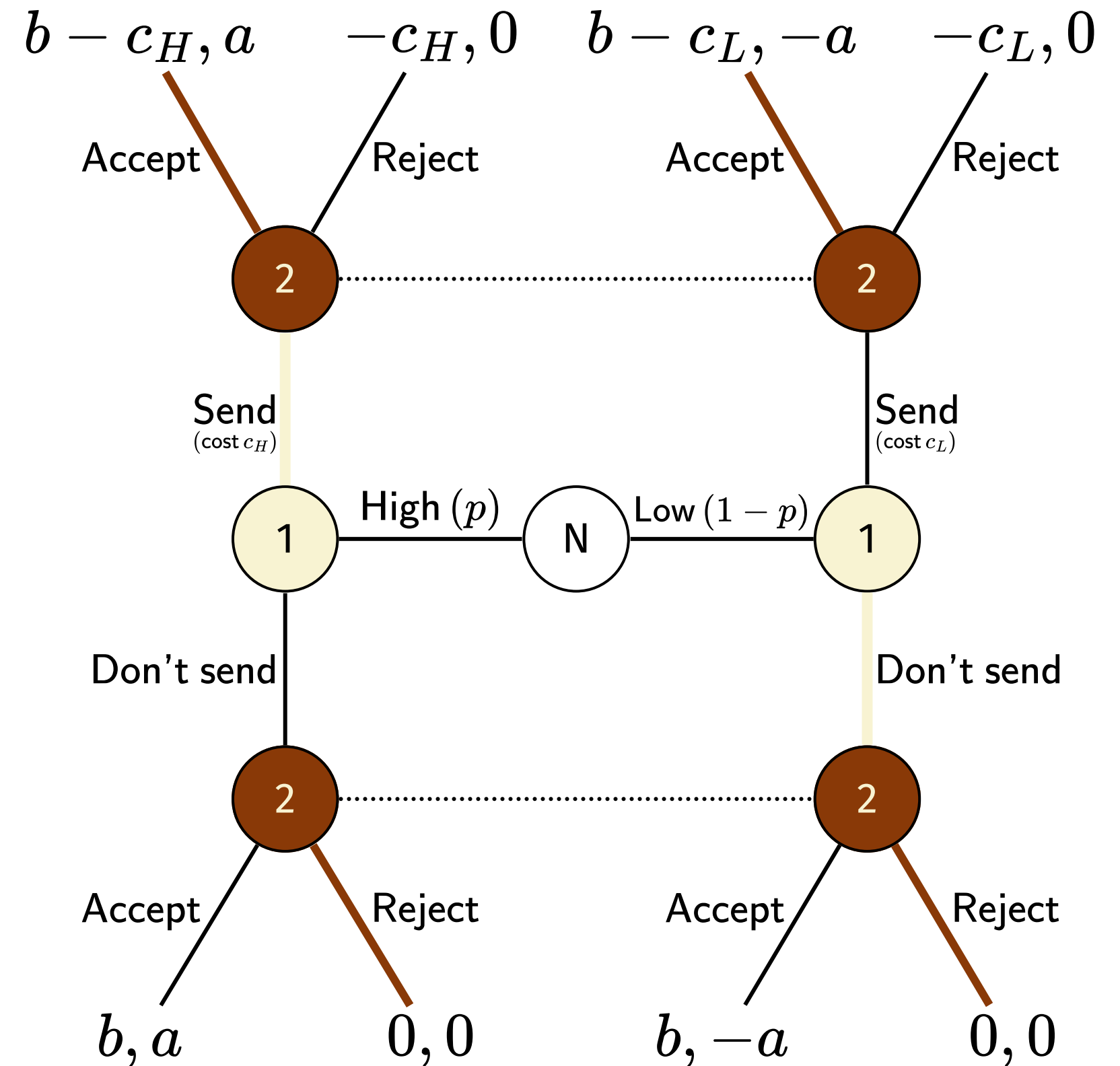
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which is equivalent to:

$$c_H \leq b \leq c_L.$$



In a separating equilibrium the signal is costly enough that only the high types can afford to send the signal.





EREZ YOELI

In equilibrium, resources are wasted in order to signal one's type.



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MOSHE HOFFMAN

Crucially, this only happens if the signal is less onerous for the more desirable type.



Yoeli, E., & Hoffman, M. (2022). *Hidden Games: The Surprising Power of Game Theory to Explain Irrational Human Behavior*. Basic Books.

Costly signaling shows up everywhere.



# SUNBIRDS





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Male malachite birds sport long, costly tails.

Costly because heavy, and impede flight.

But longer tails make them more attractive to potential mates...

Evans, M., & Hatchwell, B. J. (1992). An experimental study of male adornment in the scarlet-tufted malachite sunbird: II. The role of the elongated tail in mate choice and experimental evidence for a handicap. *Behavioral Ecology and Sociobiology*, 29(6), 421–427.





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Presumably, a costly signal shows that the sender is fit enough to afford it.



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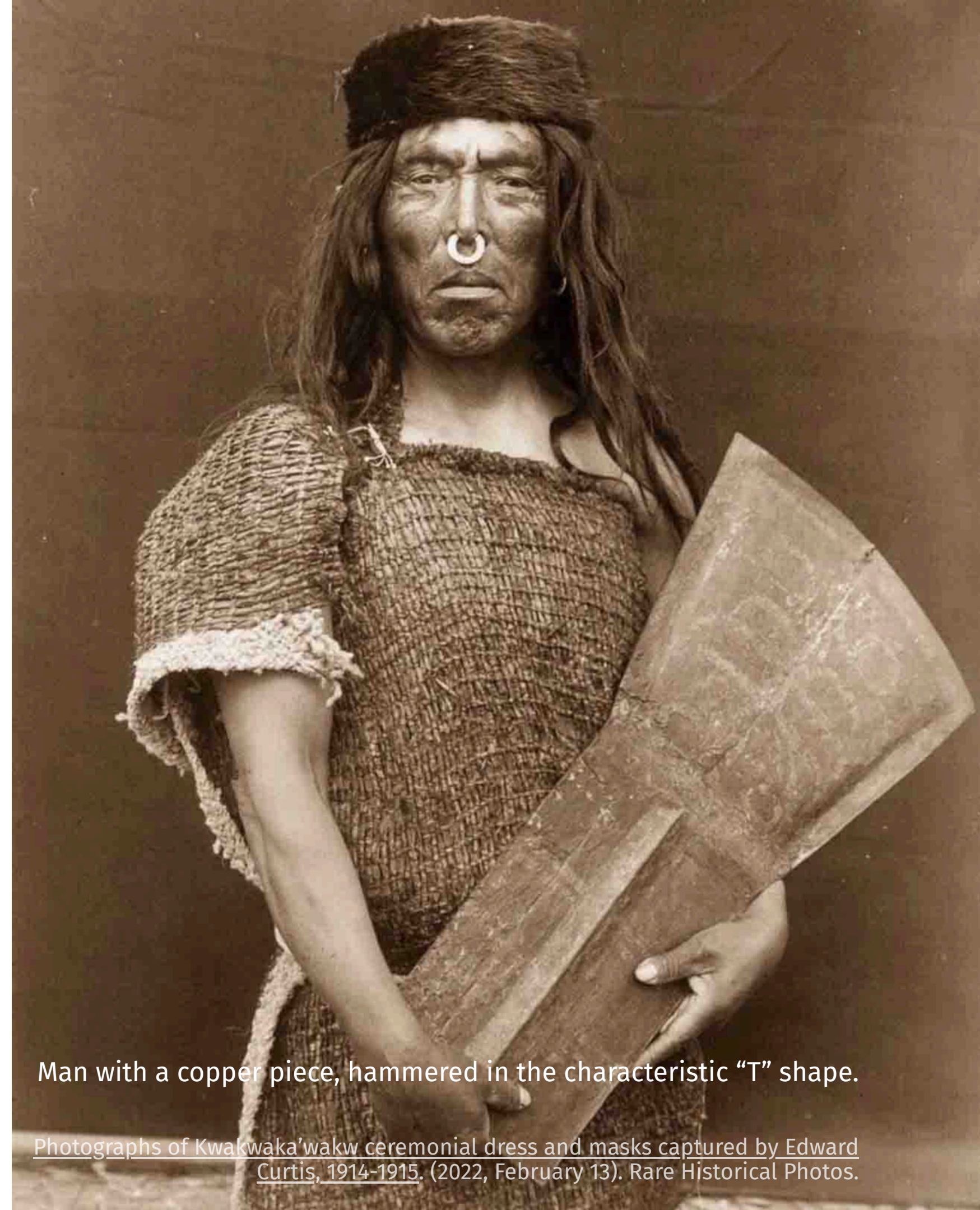


Price, and the value of the signal, is generally a function of the item's scarcity.



# POTLATCHES

At some Kwakwaka'wakw potlatches the chief would actually *burn* precious resources.



Man with a copper piece, hammered in the characteristic “T” shape.

Photographs of Kwakwaka'wakw ceremonial dress and masks captured by Edward Curtis, 1914-1915. (2022, February 13). Rare Historical Photos.



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At some Kwakwaka'wakw potlatches the chief would actually *burn* precious resources.

Presumably as a signal of prestige.

'I can afford to burn what you don't even have.'



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# PINEAPPLES

Around the 17<sup>th</sup> - 18<sup>th</sup> centuries, pineapples were an important status symbol.



Hendrick Danckerts (c.1675-80). Charles II Presented with a Pineapple.  
*The Royal Collection.*



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Less impressive today (obviously), when widely available.

Wikipedia contributors. (2025, March 11). [Pineapple mania](#). Wikipedia, Beauman, F. (2005). The pineapple: King of fruits. *Chatto & Windus*.

Hendrick Danckerts (c.1675-80). Charles II Presented with a Pineapple. *The Royal Collection*.





# ETIQUETTE

Knowing the 'proper' rules of conduct signals not just wealth, but also that you have the 'right upbringing.'

Costly, because you need to have been educated into it.



WIRED [@WIRED]. (2024, August 6). Etiquette Expert Answers Etiquette Questions From Twitter | Tech Support | WIRED. Youtube.



BRYAN CAPLAN

Education these days is mostly about signaling.

Signaling that you can jump through the hoops required of a good employee.

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RICHARD SOSIS

Religious communities have strict rules that their members have to follow.

Signals of how committed you are.



Sosis, R. (2003). Why Aren't We All Hutterites? *Human Nature*, vol. 14, no. 2, pp. 91–127.



# Verse 1

words

155

syllables

214

His palms are sweaty, knees weak, arms are heavy

There's vomit on his sweater already: Mom's spaghetti

He's nervous, but on the surface he looks calm and ready

To drop bombs, but he keeps on forgetting

What he wrote down, the whole crowd goes so loud

He opens his mouth, but the words won't come out

He's choking, how? Everybody's joking now

The clock's run out, time's up, over – blaow!

Snap back to reality, oh, there goes gravity

Oh, there goes Rabbit, he choked, he's so mad but he won't

Give up that easy nope, he won't have it, he knows

His whole back's to these ropes, it don't matter, he's dope

# RAP LYRICS

Complicated rhyming schemes  
as a signal of cleverness.

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His whole back's to these ropes, it don't matter, he's dope  
He knows that, but he's broke, he's so stagnant, he knows  
When he goes back to this mobile home, that's when it's  
Back to the lab again, yo! This whole rhapsody  
He better go capture this moment and hope it don't pass him

Rapping, deconstructed: The best rhyimers of all time

Vox 12.6M subscribers

477K

Share

Download

Save

Vox [@Vox]. (2016, May 19). Rapping, deconstructed: The best rhyimers of all time. Youtube.

More generally, artistic constraints can be interpreted as a way to signal the artist's skill.



EREZ YOELI

But if signals are supposed to show off how cool you are, why do people sometimes bury them?

Why do people say they went to school 'in Boston' when they went to Harvard?





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Why do people say they went to school 'in Boston' when they went to Harvard?

MOSHE HOFFMAN

It's not hard to see.



Burying is, itself, a costly signal.

A signal that you can afford for some people to not see your desirable signals.

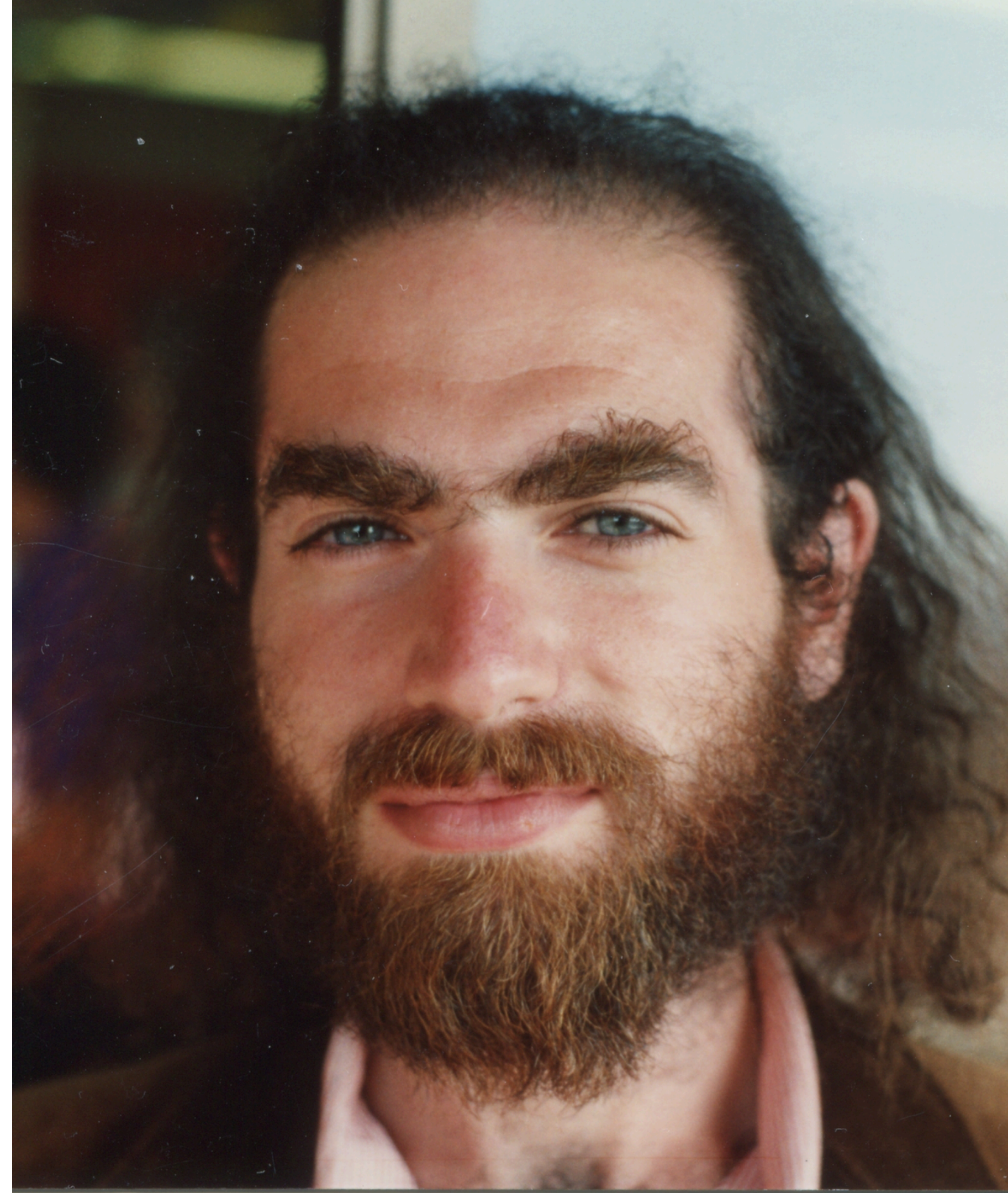
Hoffman, M., Hilbe, C., & Nowak, M. A. (2018). The signal-burying game can explain why we obscure positive traits and good deeds. *Nature Human Behaviour*, 2(6), 397–404.



# Grigori Perelman

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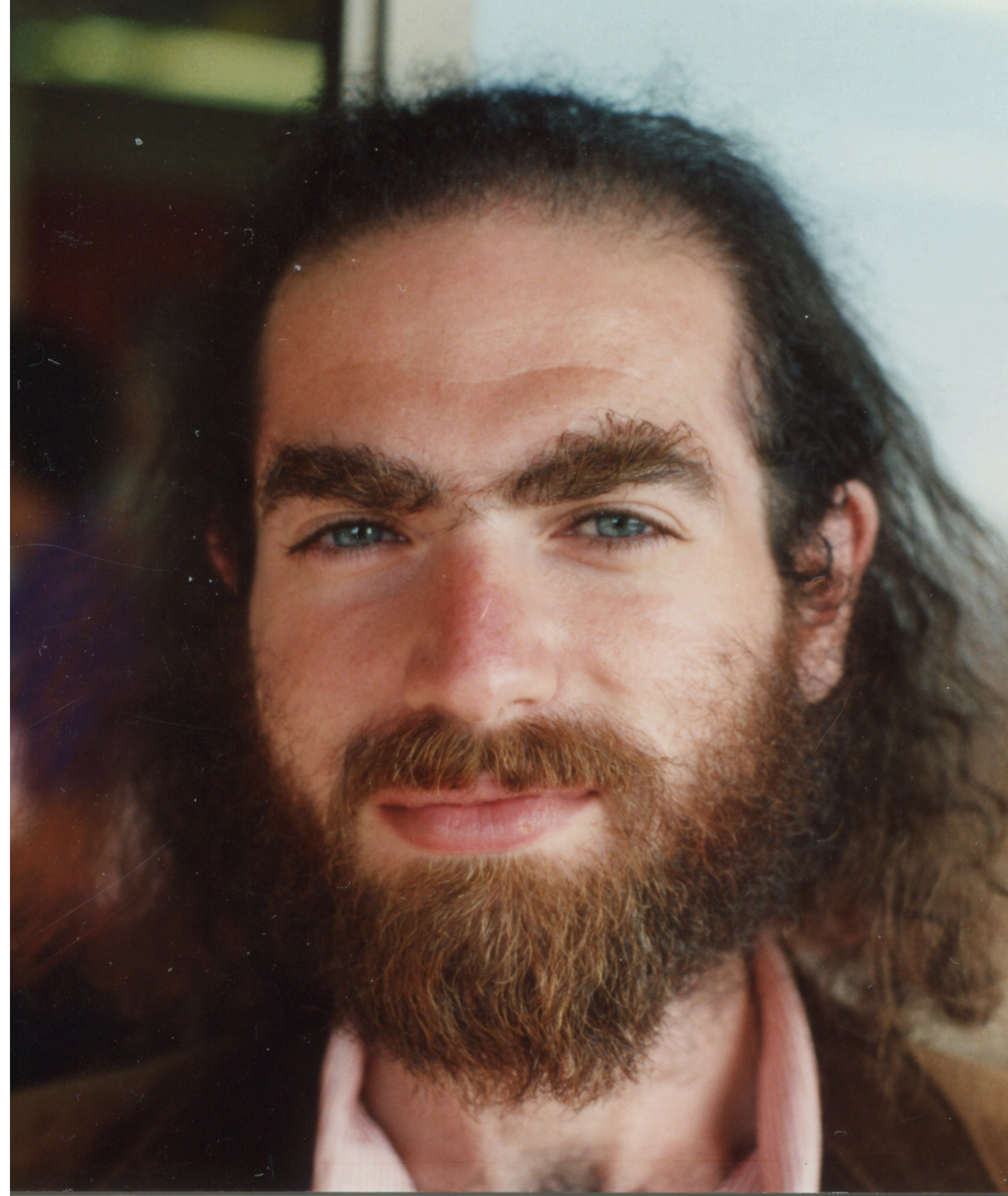


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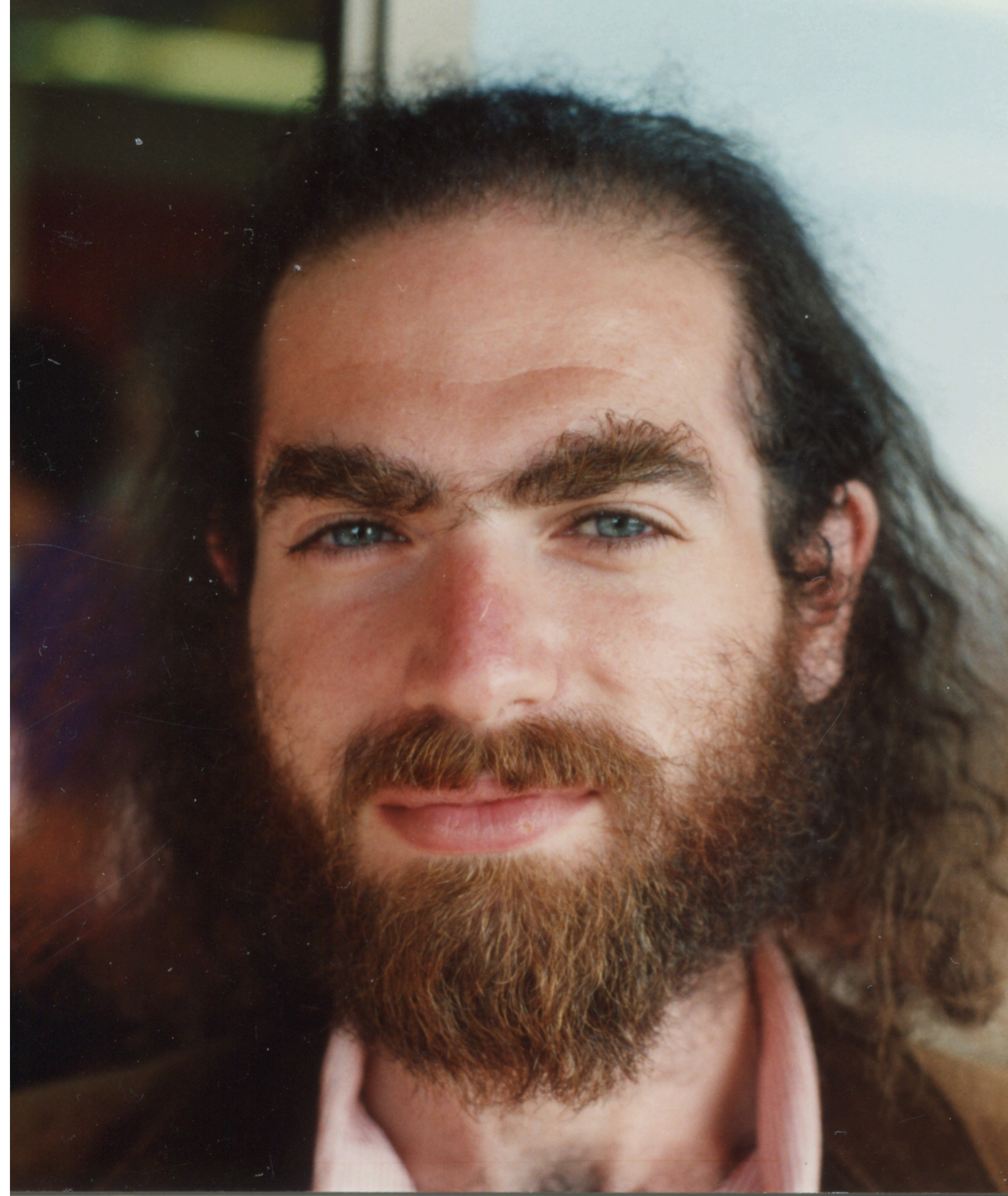
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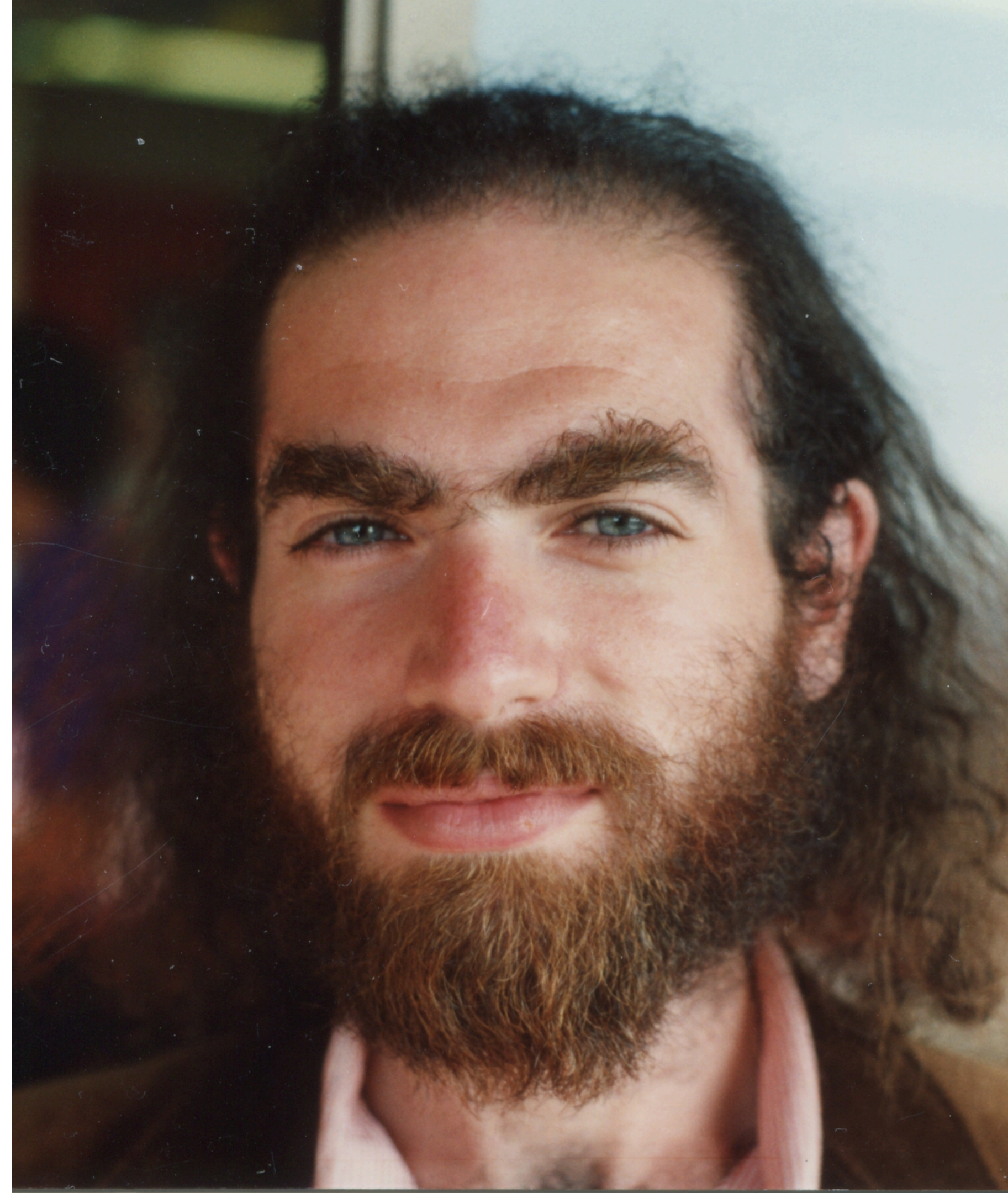
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At the same time, he is much more famous having refused the awards than if he'd accepted them.





Pro tip: if you ever get the Nobel prize,  
refuse it. :)

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## **MANY POSITIVE SIGNALS**

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## **DEVOTED FANS**

Burying can signal that you have fans willing to dig deep.

## **SPECIFIC OBSERVERS**

Signals can be meant for a narrow, specialized audience (critics, connoisseurs).