

Core Component of Communication



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Our claim in this work

**We have discovered a
Core Component of communication**

Core Component of Communication?

- Fundamental Protocol
- Building block
- Establish agreements
- Using interactions
- In Organizations
- Mediated through Information Systems

More precise context

- 1) We aim to build an Information System that mediates interactions on a message based asynchronous network, like the internet.
- 2) Our focus is on reaching agreements based on speech acts, in interactions, where participants aim to reach agreements with good intentions.

Speech Acts?

state; assert; describe; warn; remark;
comment; command; order; request;
criticize; apologize; censure; approve;
welcome; promise; express approval;
express regret; ...

Searle, J. R. (1969). *Speech acts: An essay in the philosophy of language* (Vol. 626).
Cambridge university press.

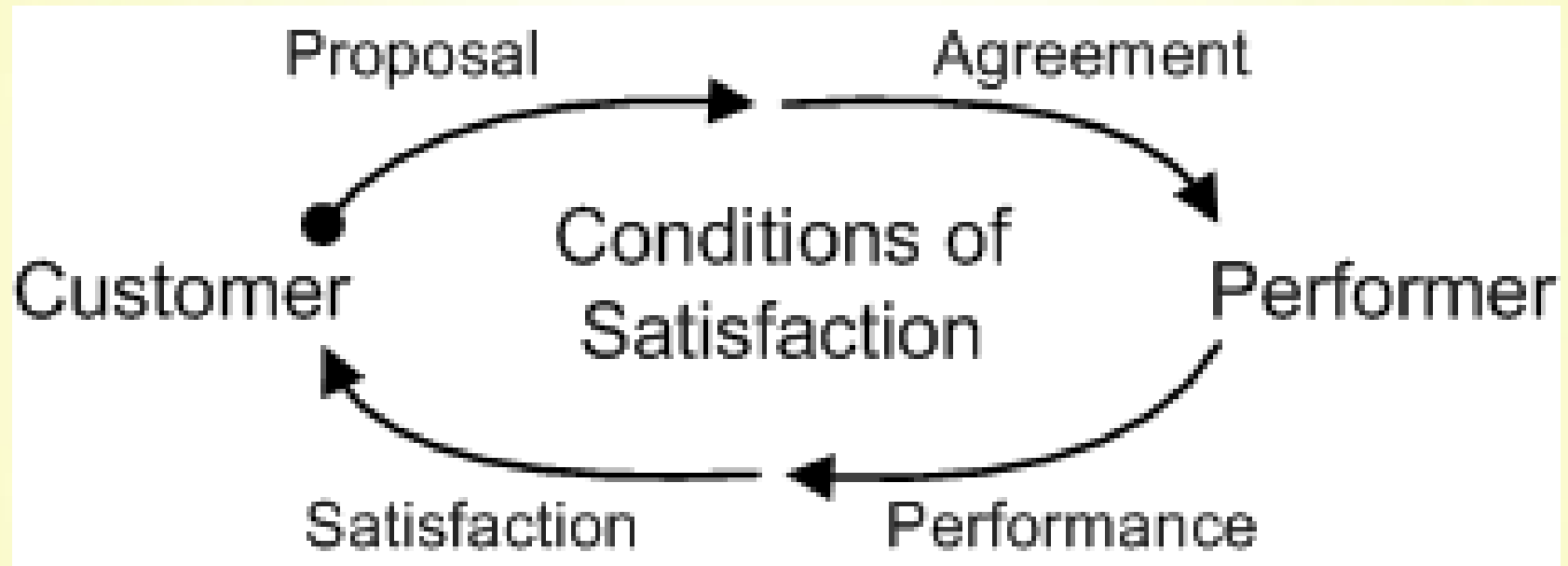
Communication?

Flores et al. :

Communication as exchange of speech acts, assuming shared interest, and aiming at fulfillment, regardless of conditions used to reach fulfillment.

Flores, F., Graves, M., Hartfield, B., & Winograd, T. (1988). Computer systems and the design of organizational interaction. *ACM Transactions on Information Systems (TOIS)*, 6(2), 153-172.

Action Workflow Approach



Medina-Mora, R., Winograd, T., Flores, R., & Flores, F. (1992, December). The action workflow approach to workflow management technology. In *Proceedings of the 1992 ACM conference on Computer-supported cooperative work* (pp. 281-288). ACM.

Habermas critique on Speech Acts

Perlocutionary acts
(for example)

- Claim to power

Illocutionary acts

- Claim to Truth
- Claim to Justice
- Claim to Sincerity

ref

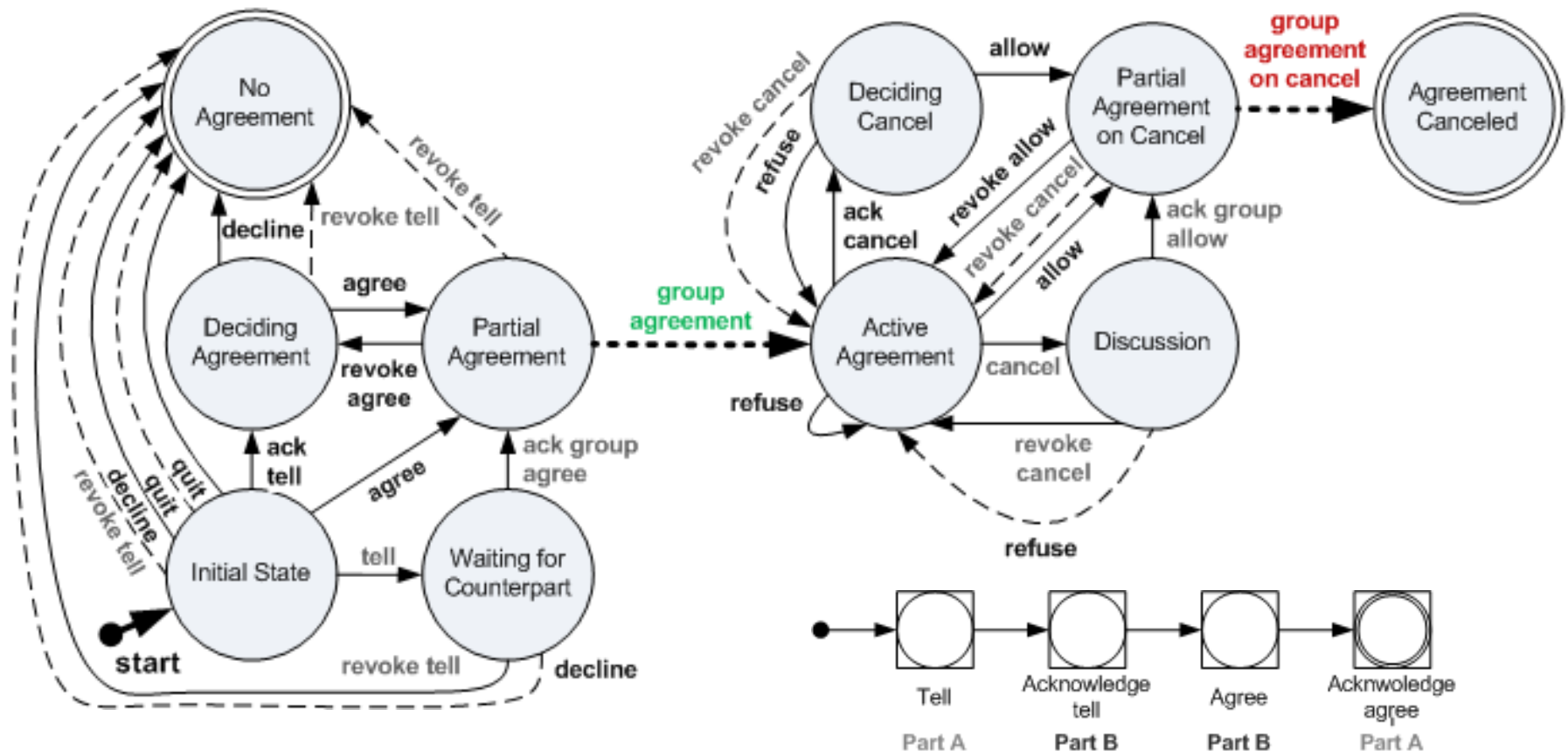
Dietz, J. L., & Widdershoven, G. A. M. (1991). Speech acts or communicative action?. In *Proceedings of the Second European Conference on Computer-Supported Cooperative Work ECSCW'91* (pp. 235-248). Springer Netherlands.

Habermas “Ideal Speech Situation”

1. Every part has equal opportunity to speak at any time.
2. Every part is free to support or question any assertion posed by others.
3. No one can be coerced into accepting the counterpart statements (1 and 2)
4. Every part acts with the desire to reach an agreement.

Habermas, J. (1990). Discourse Ethics: Notes on a Program of Philosophical Justification, Moral Consciousness and Communicative Action, trans. Christian Lenhardt and Shierry Weber Nicholsen.

Tell & Agree

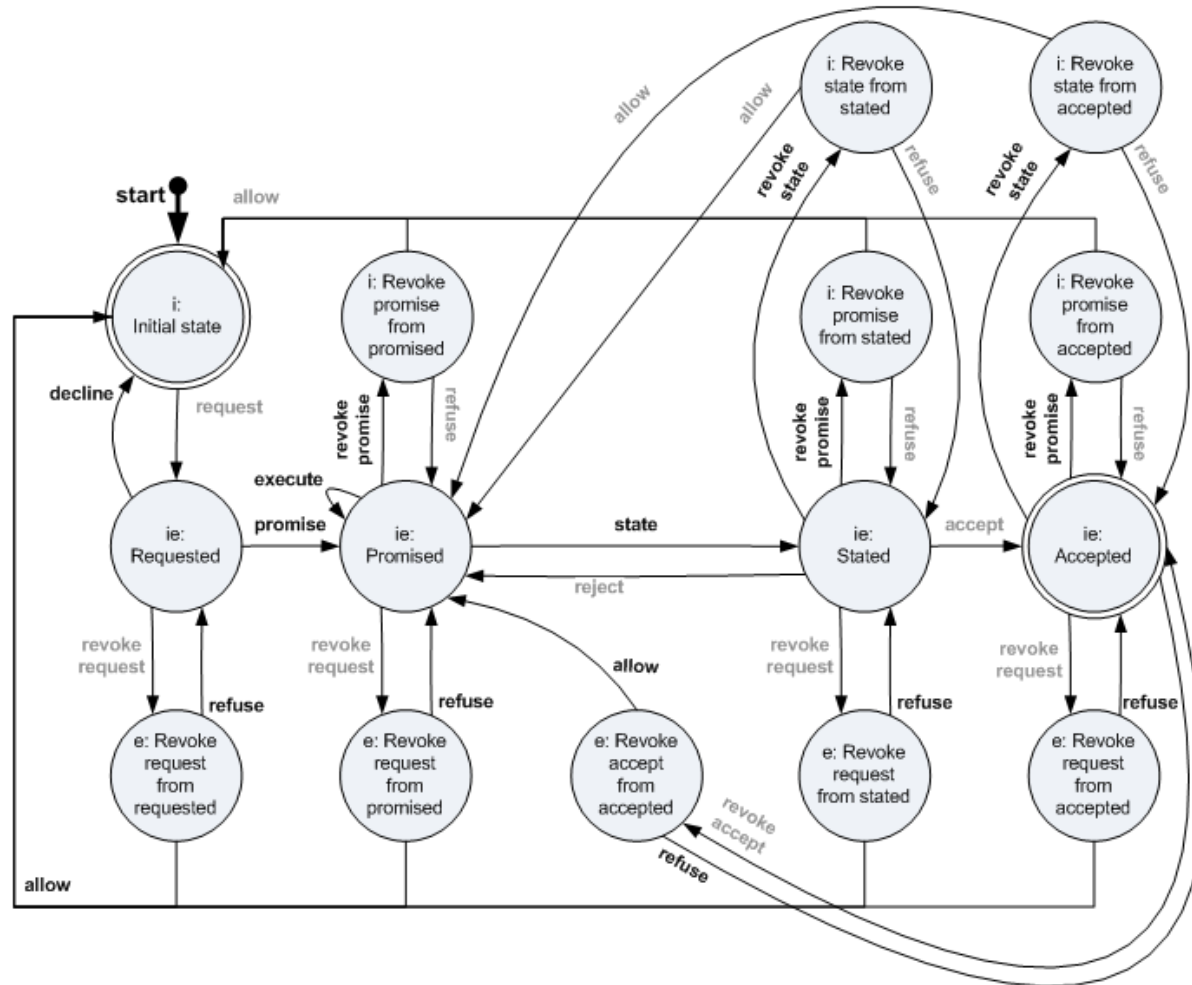


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Tell & Agree

- Follows “Ideal Speech Situation”
- Message-based protocol
- Power of initiative to all participants (not just “initiator”)
- No “all mighty requests”
- Agreements reached through dialog (State Chart)
- More than 2 participants

DEMO/PSI



duarte-gouveia.info/protocols

Gouveia, D., & Aveiro, D. Two Protocols for DEMO Engines: PSI or Tell&Agree.

Roadmap for this Presentation

Describe Core Component of Communication

- Metaphor (Puzzle Piece)
- Black Box
- White Box

Validate Core Component of Communication

- Apply it to Tell&Agree
- Apply it to DEMO/PSI

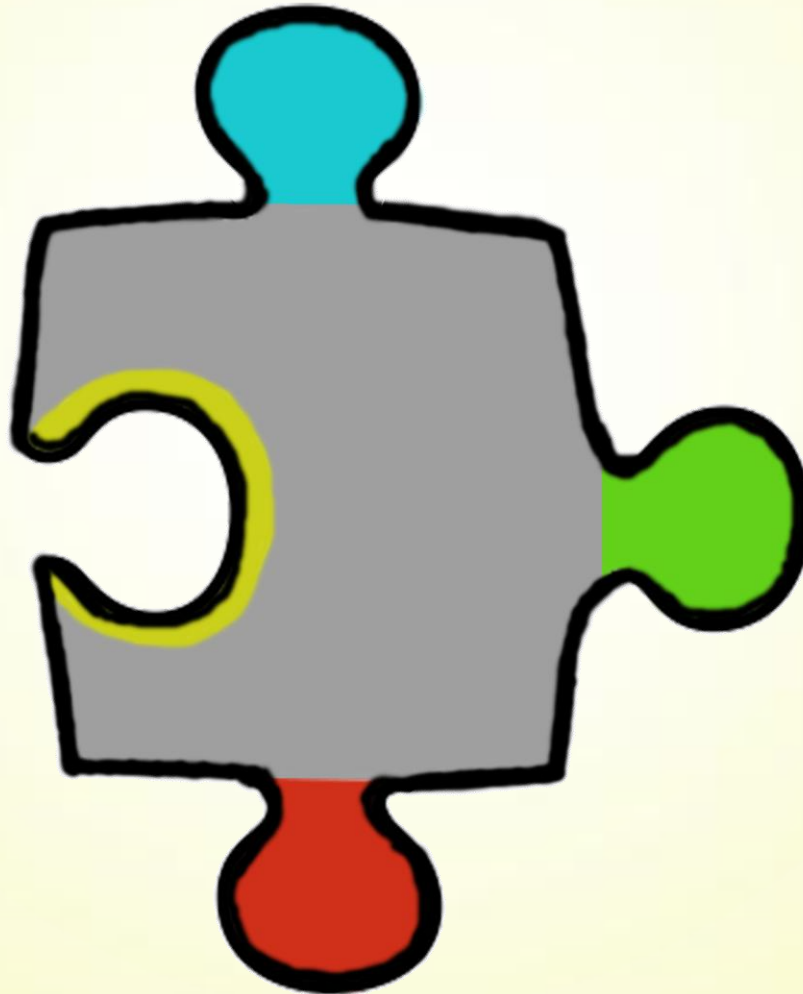
What else?

- New answer states
- Number of participants
- Voting Process
- Enter / Leave process
- Integration with more speech acts

Informative; Question; Meaningful; Material; Delegation; Advice; Identification

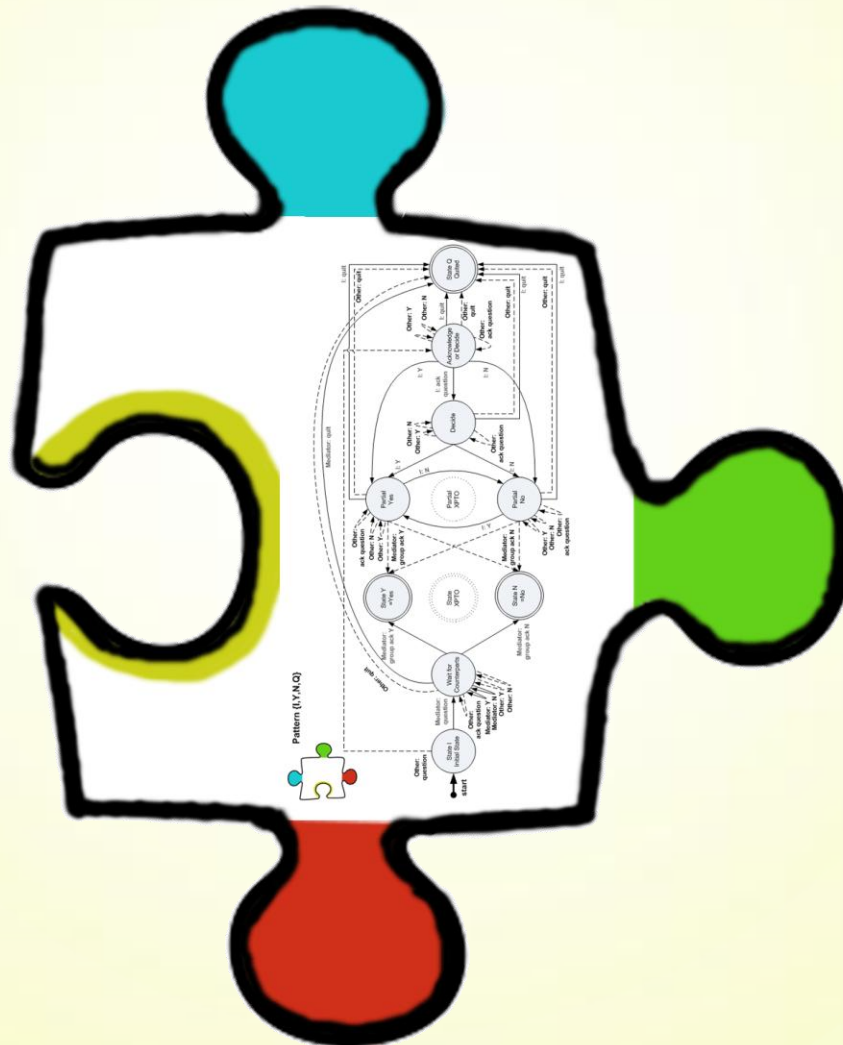
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The Metaphor



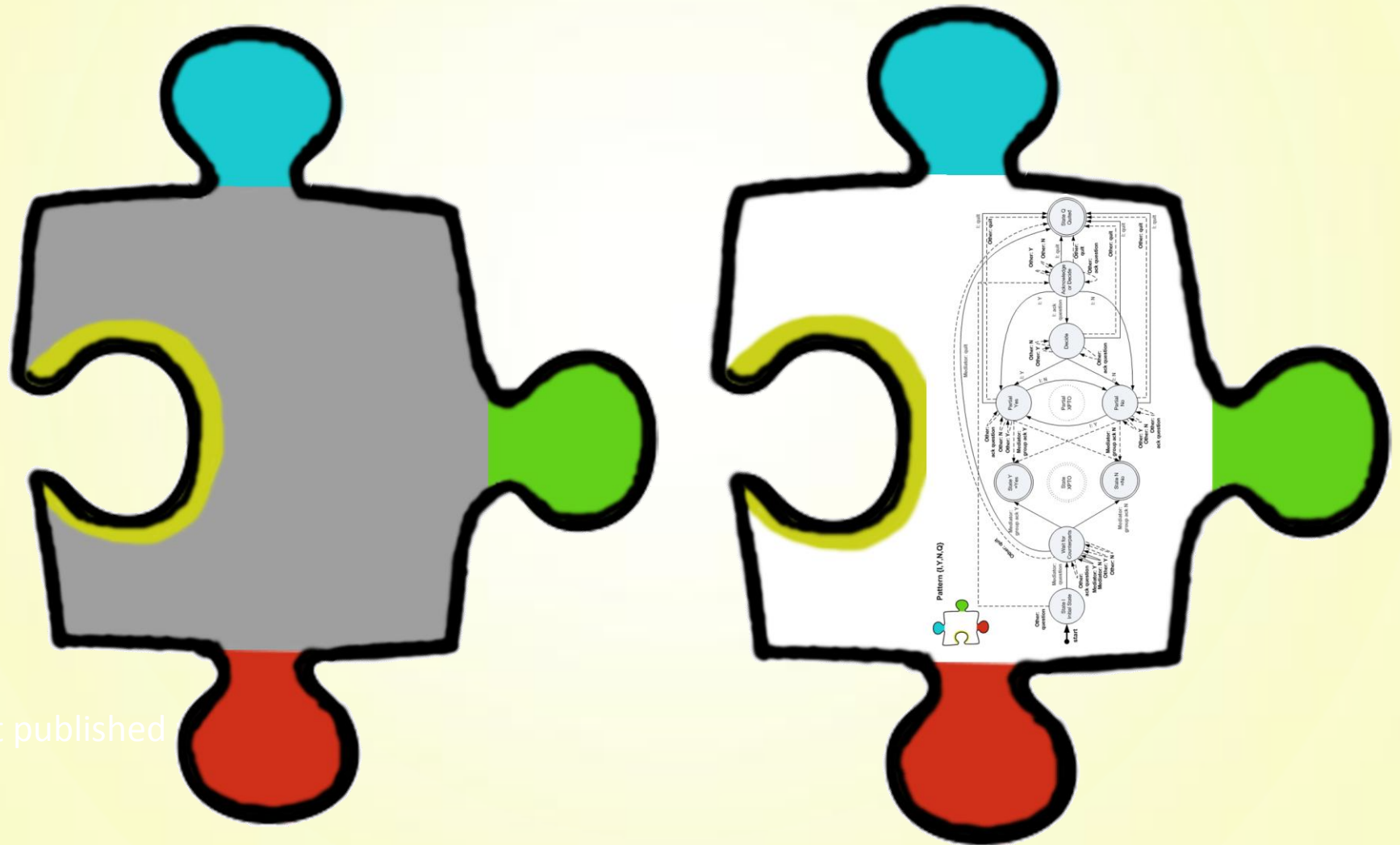
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The Metaphor



Not published yet.

The Metaphor



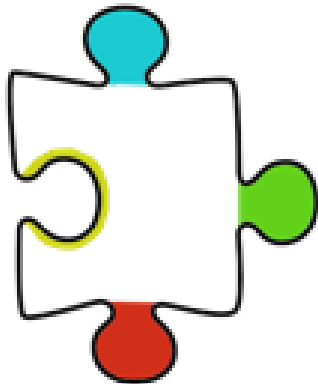
The Black Box configuration

1. Is the **quit** state (red) required to exist?
2. What are the initial answer states? (can be one or more)
3. Which answer states get you back to the initial state?
4. Do we allow new answer states to arise in the discussion?
5. How many people may participate in this decision?
6. What is the voting process to establish a decision? Options: unanimity, majority (50%+1), qualified majority, and many more complex voting options.
7. Are new participants allowed to join this decision process after its creation?
8. Are participants allowed to leave the discussion before a decision is reached?
9. Is it allowed to change the person performing the coordinator role?
10. Does the coordination also vote (even if tie breaking vote) or just coordinates?

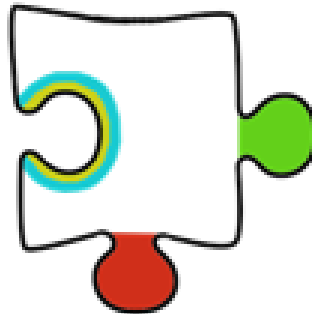
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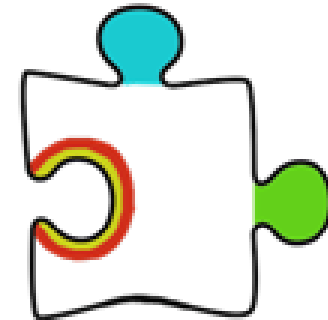
The Black Box



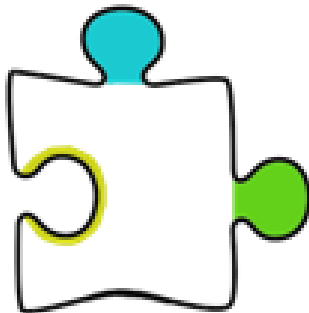
Pattern {I,Y,N,Q}



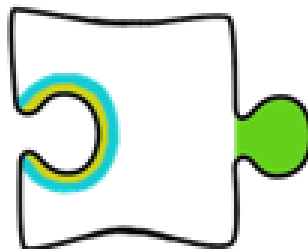
Pattern {IN,Y,Q}



Pattern {IQ,Y,N}



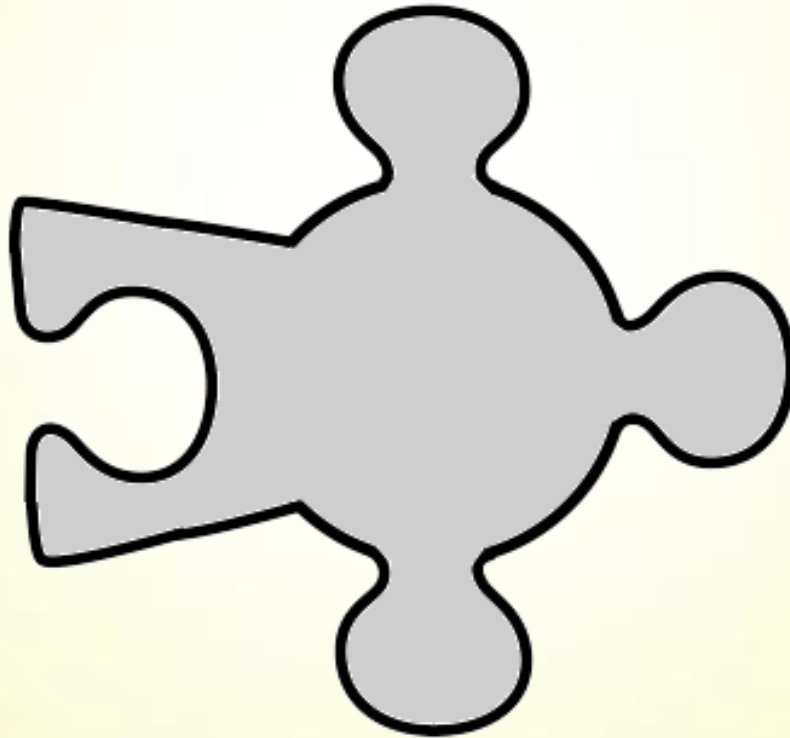
Pattern {I,Y,N}



Pattern {IN,Y}

-  Initial State
-  Quit State
-  Yes (answer 1) State
-  No (answer 2) State

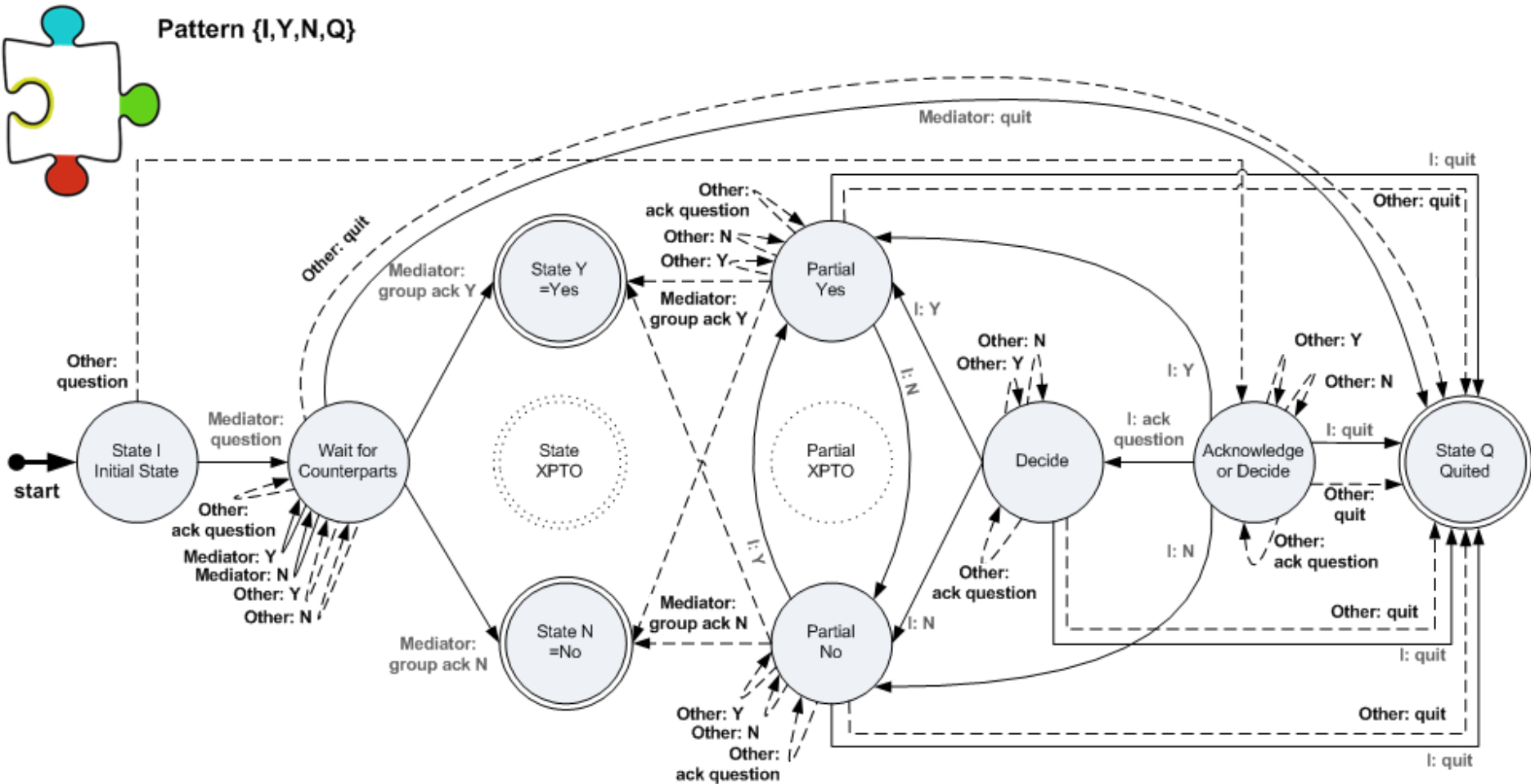
The Black Box extending the current state



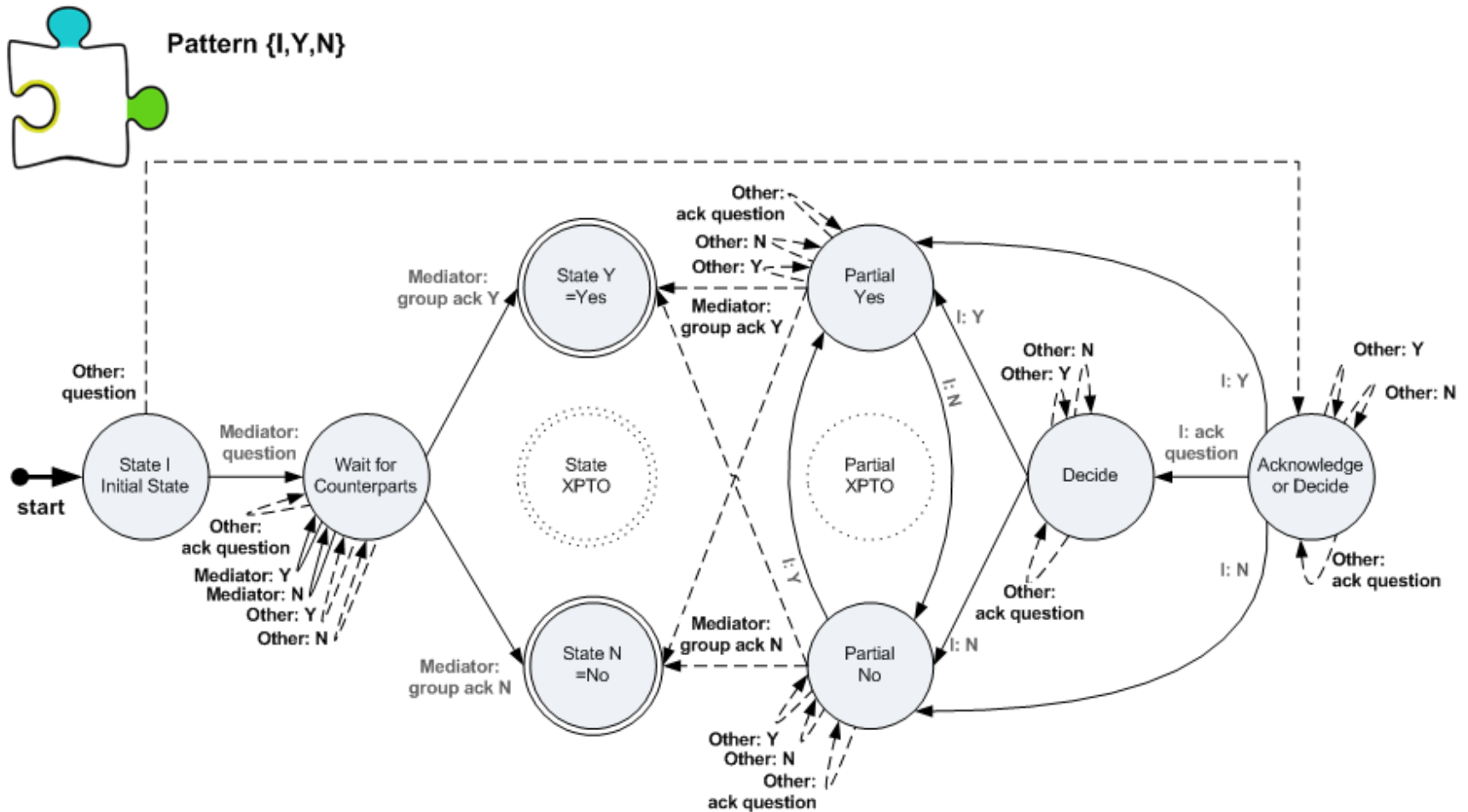
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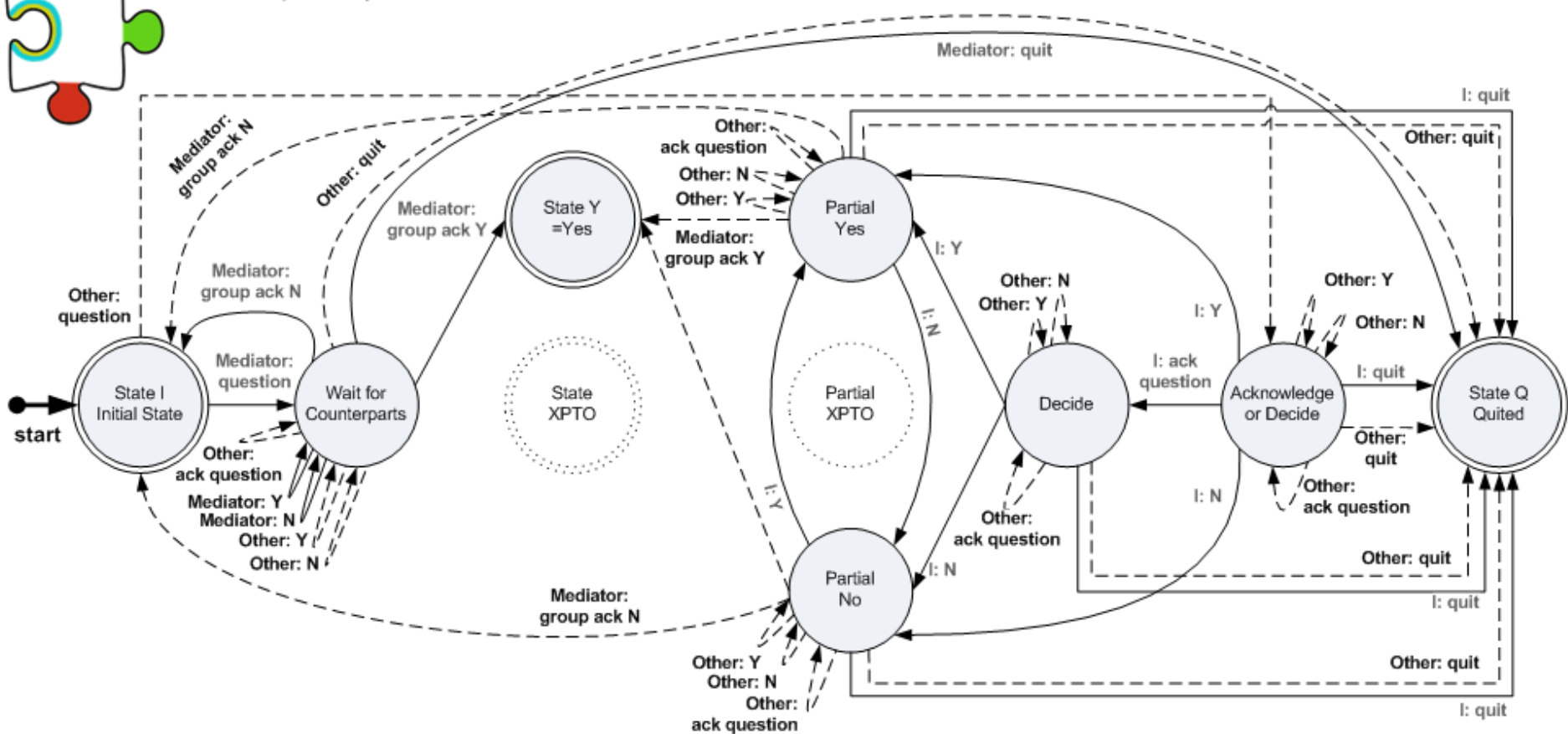
The White Box - Pattern {I,Y,N,Q}

Pattern {I,Y,N,Q}

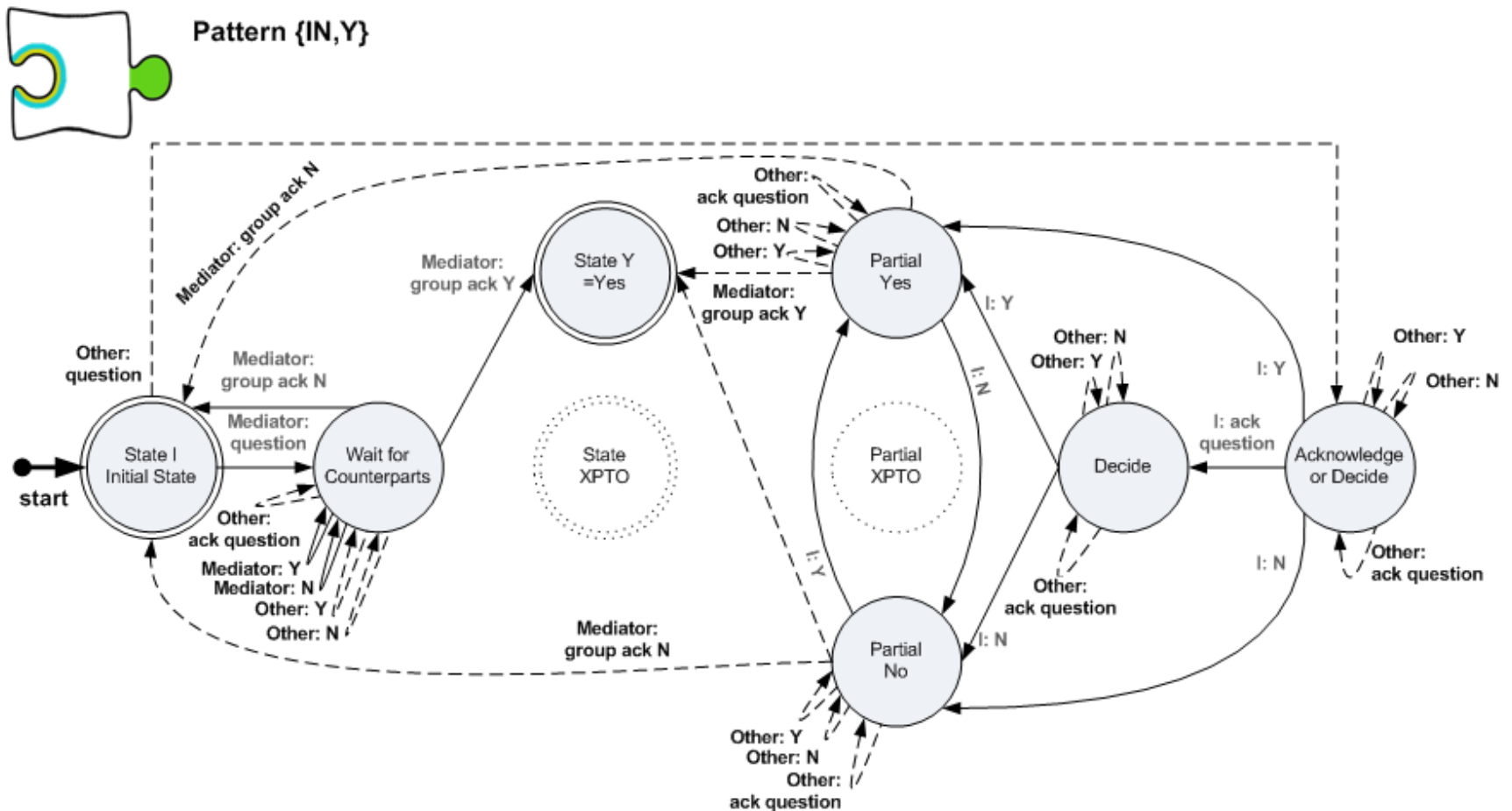


The White Box - Pattern {I,Y,N}





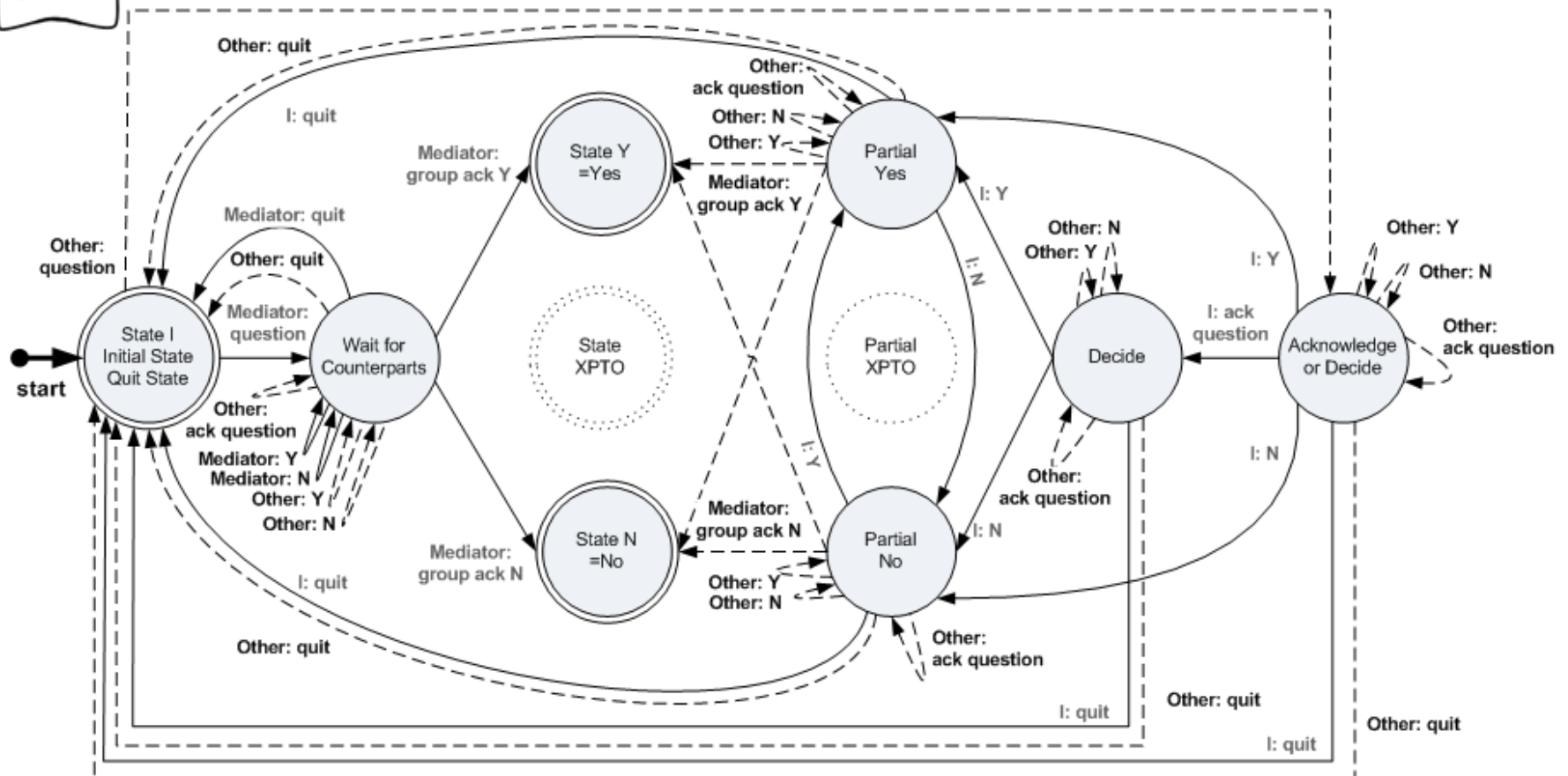
The White Box - Pattern {IN,Y}



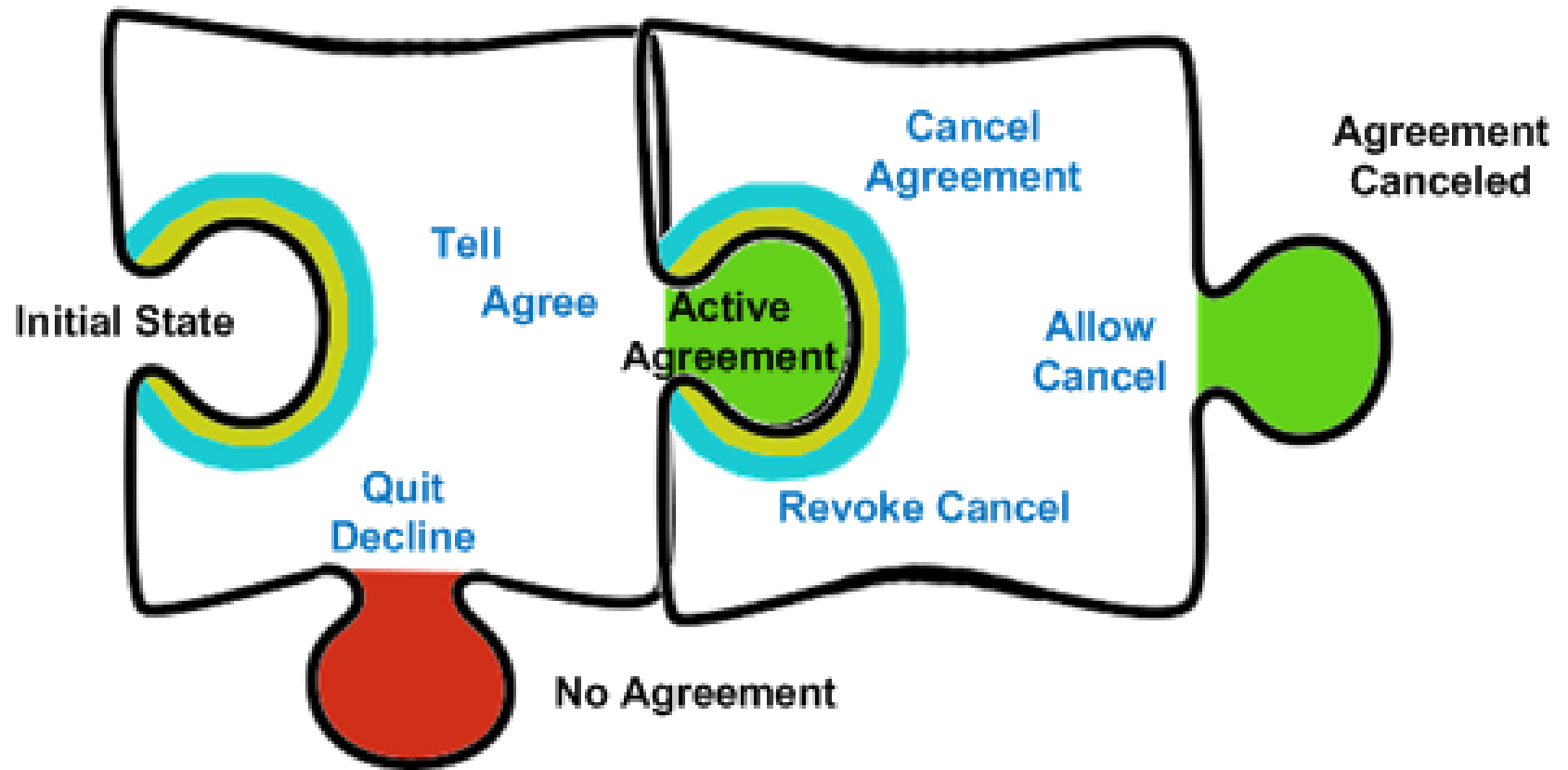
The White Box - Pattern {IQ,Y,N}



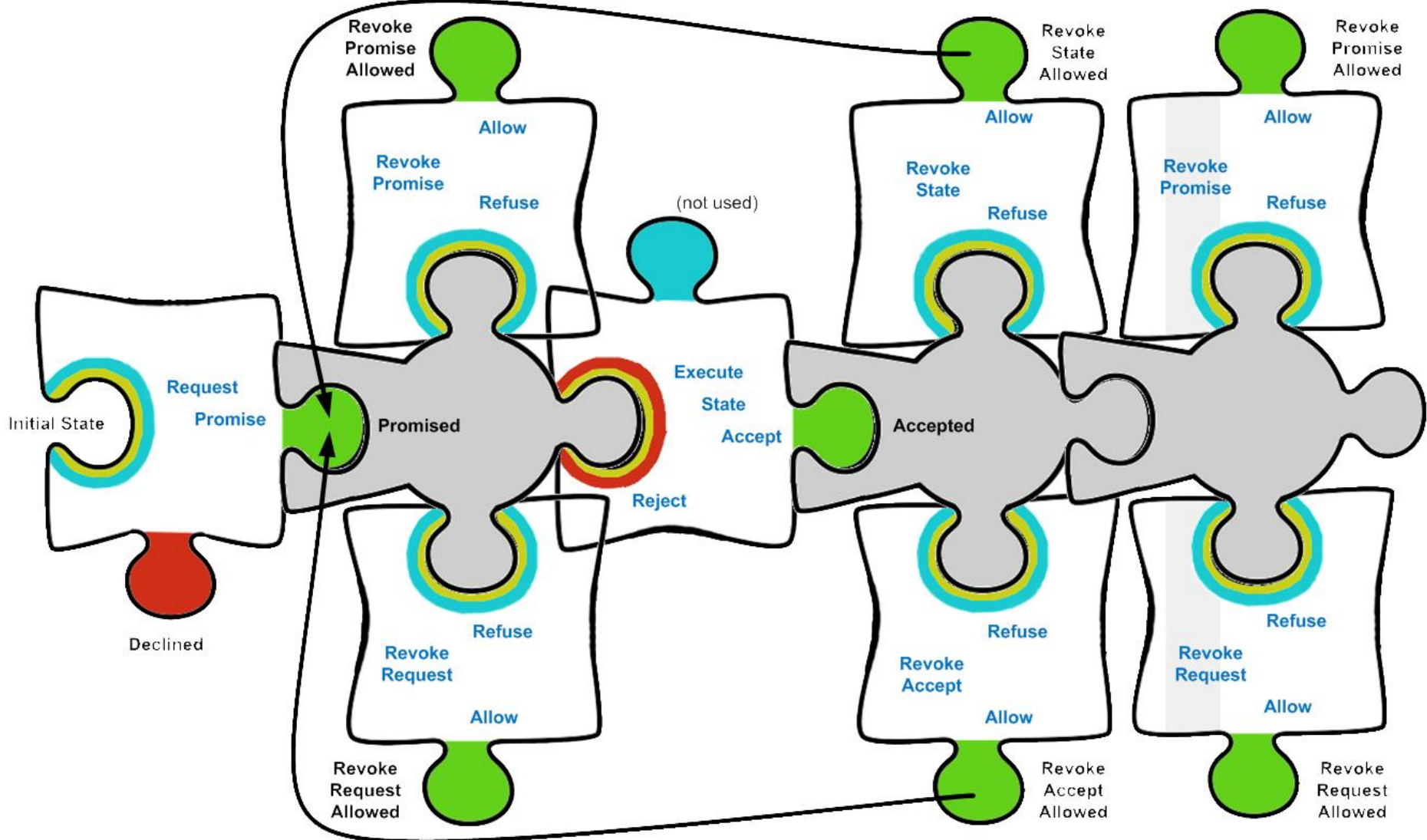
Pattern {IQ,Y,N}



Validation with Tell&Agree



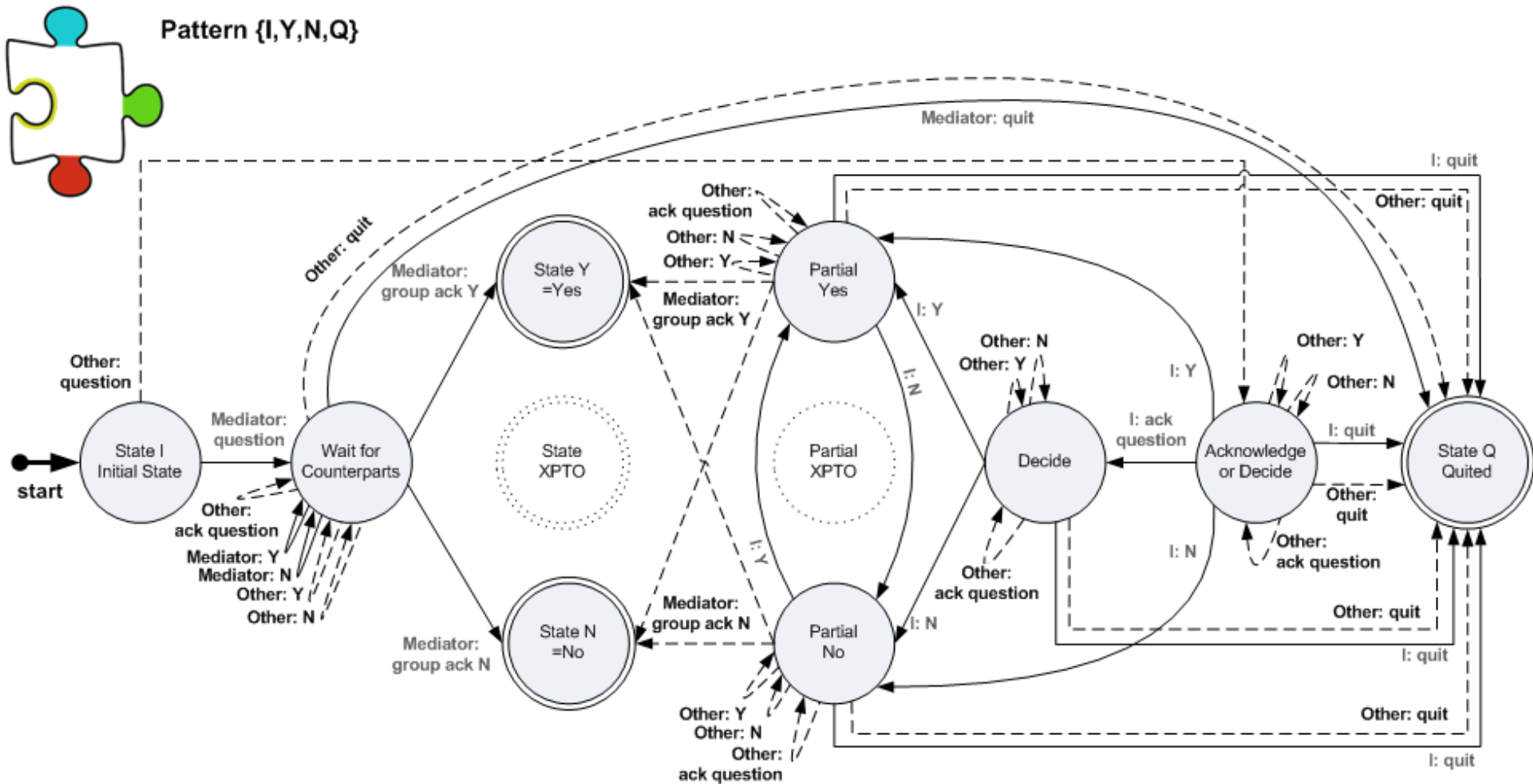
Validation with DEMO/PSI



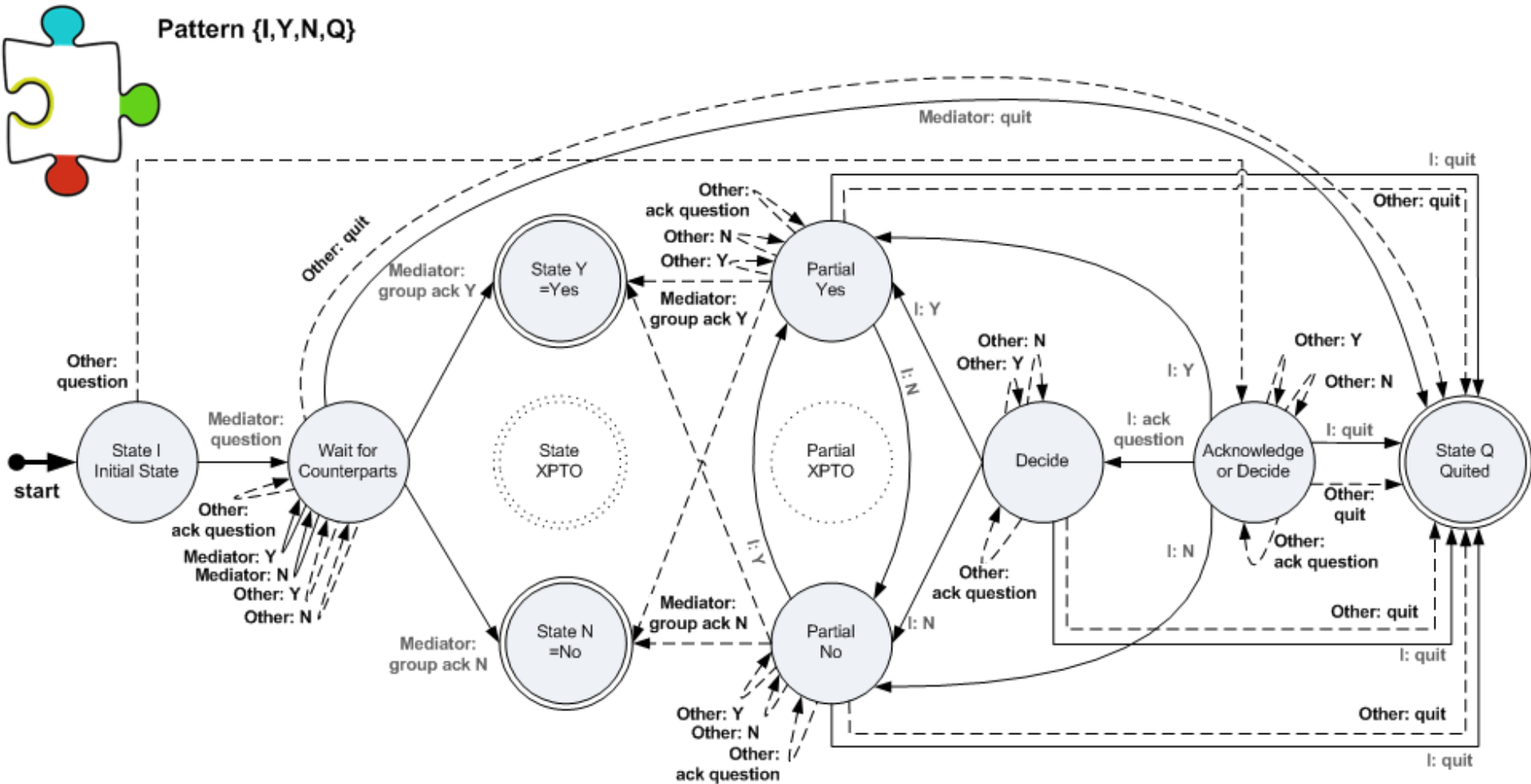
What else?

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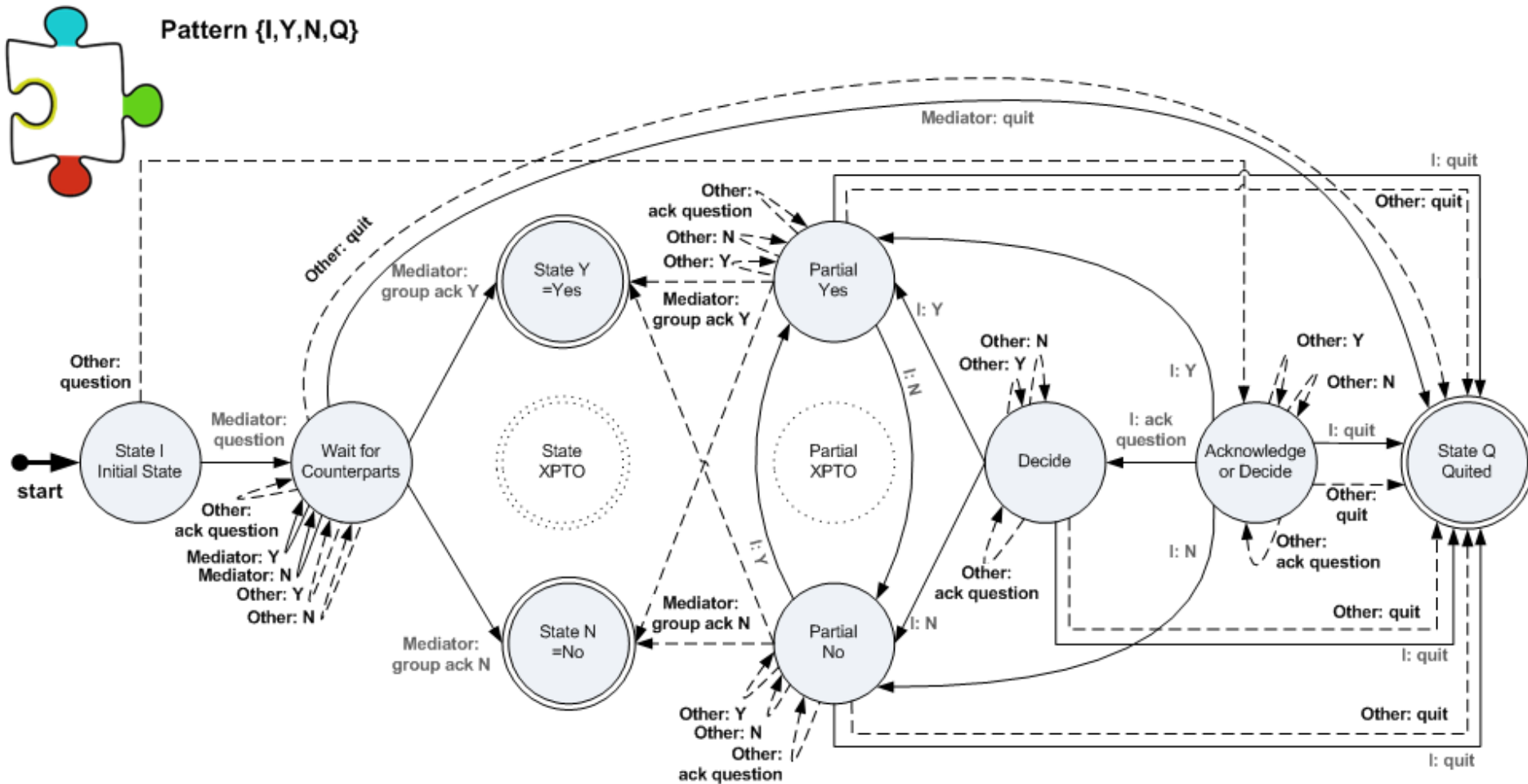
What else – New answer states

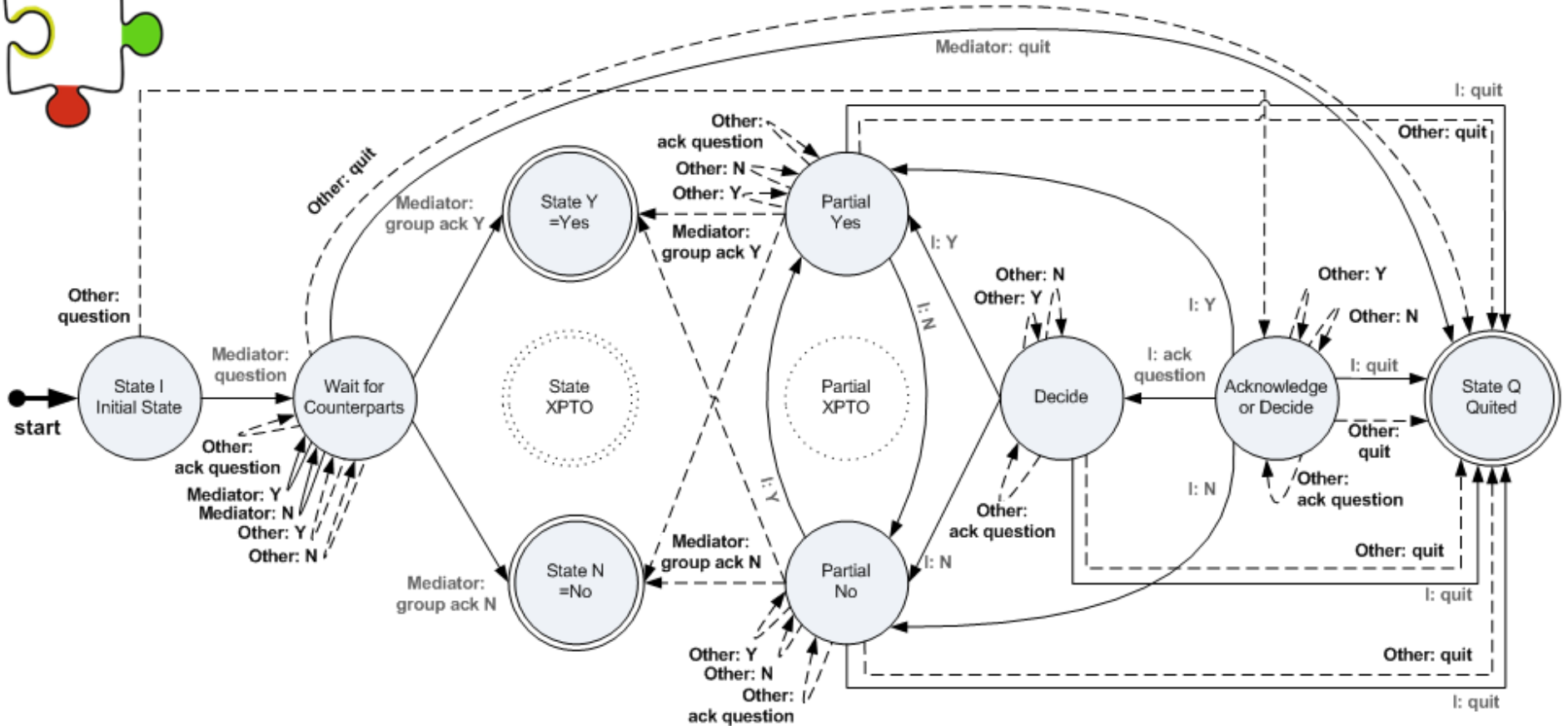


What else – Voting schemes

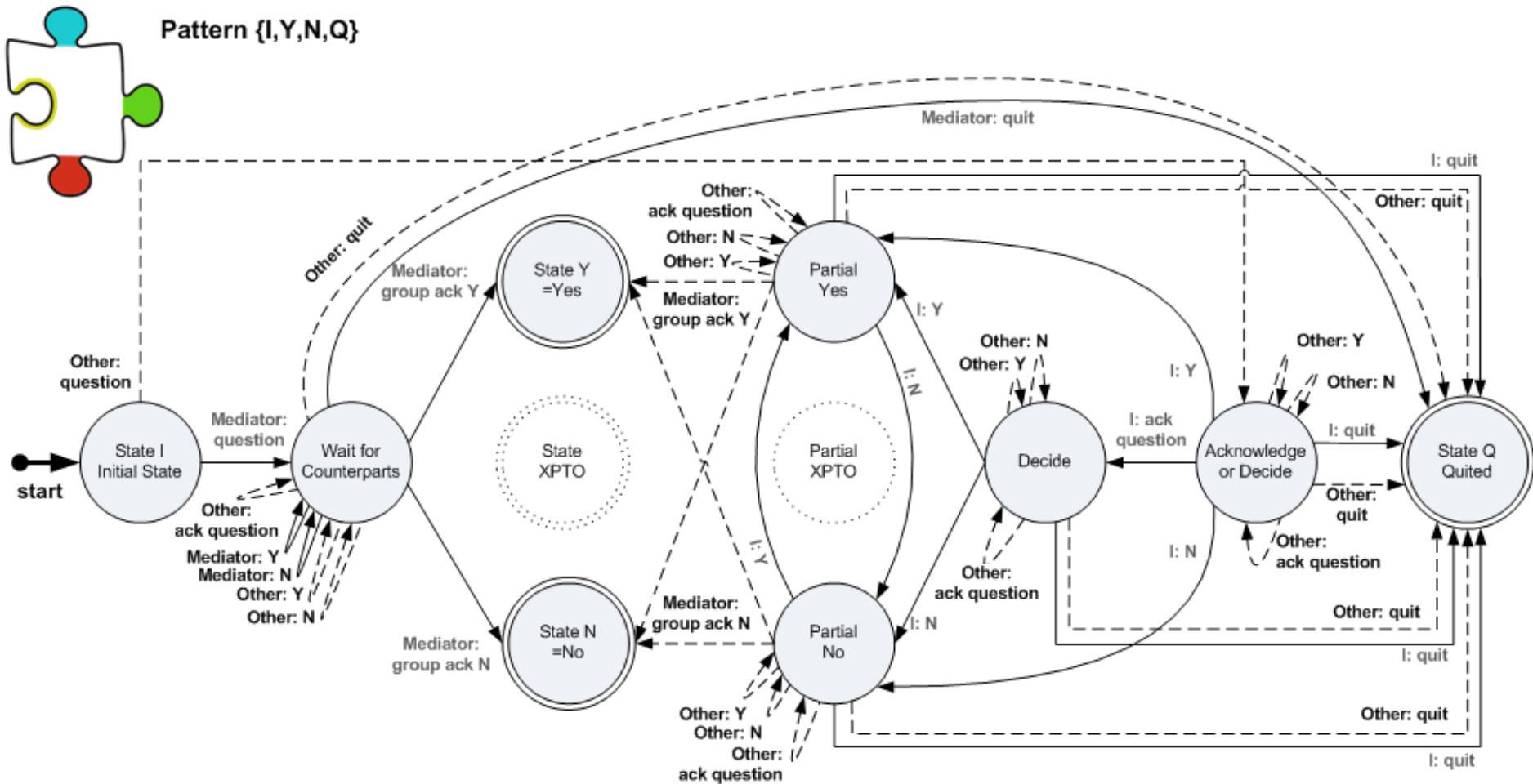


What else – Multi vote and devote





What else – Change coordinator role



What else?

Additional Acts

Not published yet.

What else?

Additional Acts

Naming issues

Teleological nature

No established standard

Names for common users

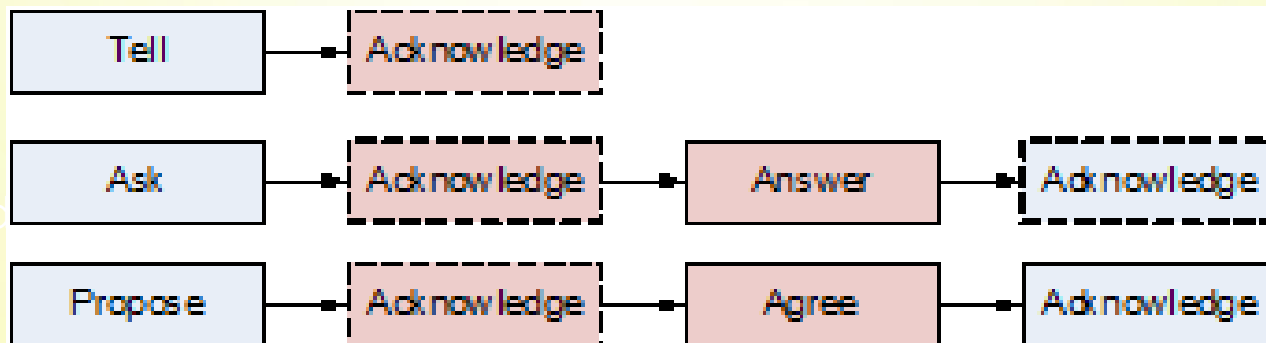
Not published yet.

What else?

Additional Acts

Informative Acts

Question Acts



What else?
Additional Acts

Meaningful Acts
Justify Abnormal Decisions
Organization Culture

Not published yet.

What else?

Additional Acts

Material Acts
Delegation Acts
Advice Acts
Identification Acts

Not published yet.

Conclusions

Not published yet.

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