

Hector: Current Interests

- Information Integration
- Information Privacy & Security
- Web Information
- Peer-to-Peer/Distributed Systems
- Managing Bio-Diversity Information
- Social Networks

CourseRank

- The System
- The Research



CourseRank Research

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CourseRank Features

- Rich data
- Collaboration with University
- User identities, closed system
- We can modify & experiment!

CourseRank Challenges

- “Rich” Recommendations
- Academic requirements
- Question/answer forums
- Social issues
- Privacy
- ...

Focus on Two Components

- Course Requirements
- Flexible Recommendations

Course Requirements

- Checking Requirements
- Recommendations Under Requirements

Example

- R_1 : Take 1 from {a, p}
- R_2 : Take 2 from {p, d, i}
- R_3 : Take 1 from {i, o}

Example

- R_1 : Take 1 from {a, p}
- R_2 : Take 2 from {p, d, i}
- R_3 : Take 1 from {i,o}

- Alice has taken: {a, p, i, o}
- Bob has taken {p, d, o}

Example

- R_1 : Take 1 from {a, p}
- R_2 : Take 2 from {p, d, i}
- R_3 : Take 1 from {i, o}

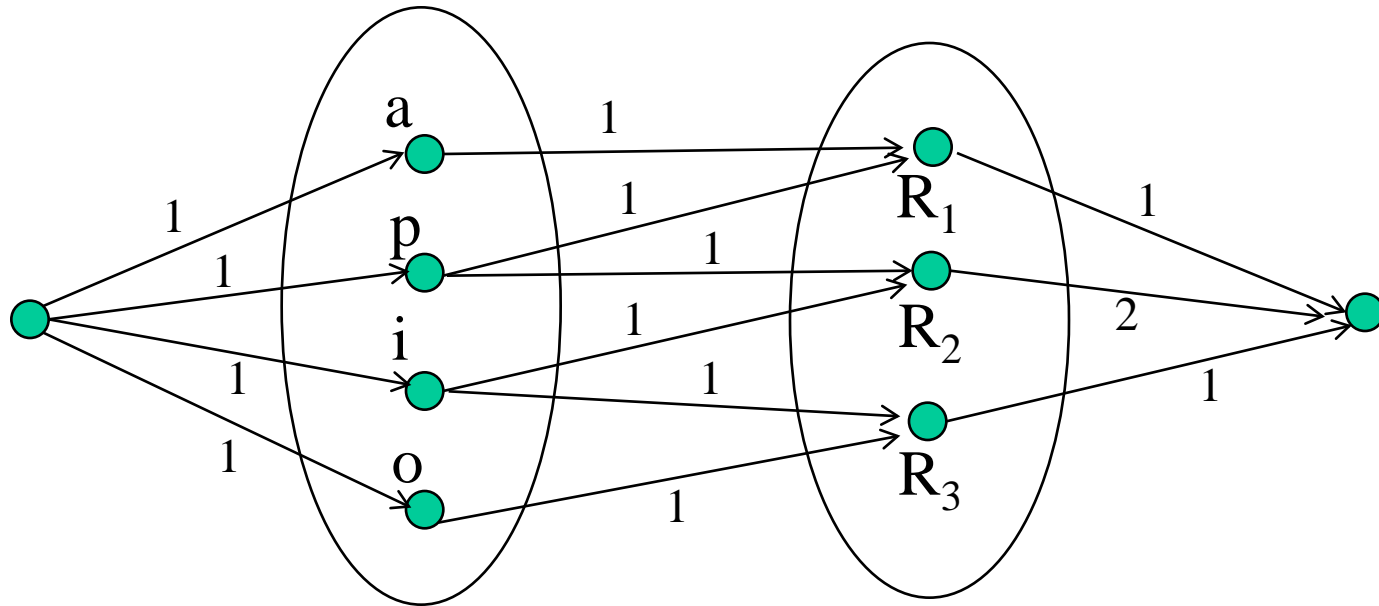
- Alice has taken: {a, p, i, o} **Satisfied!**
- Bob has taken {p, d, o}

Example



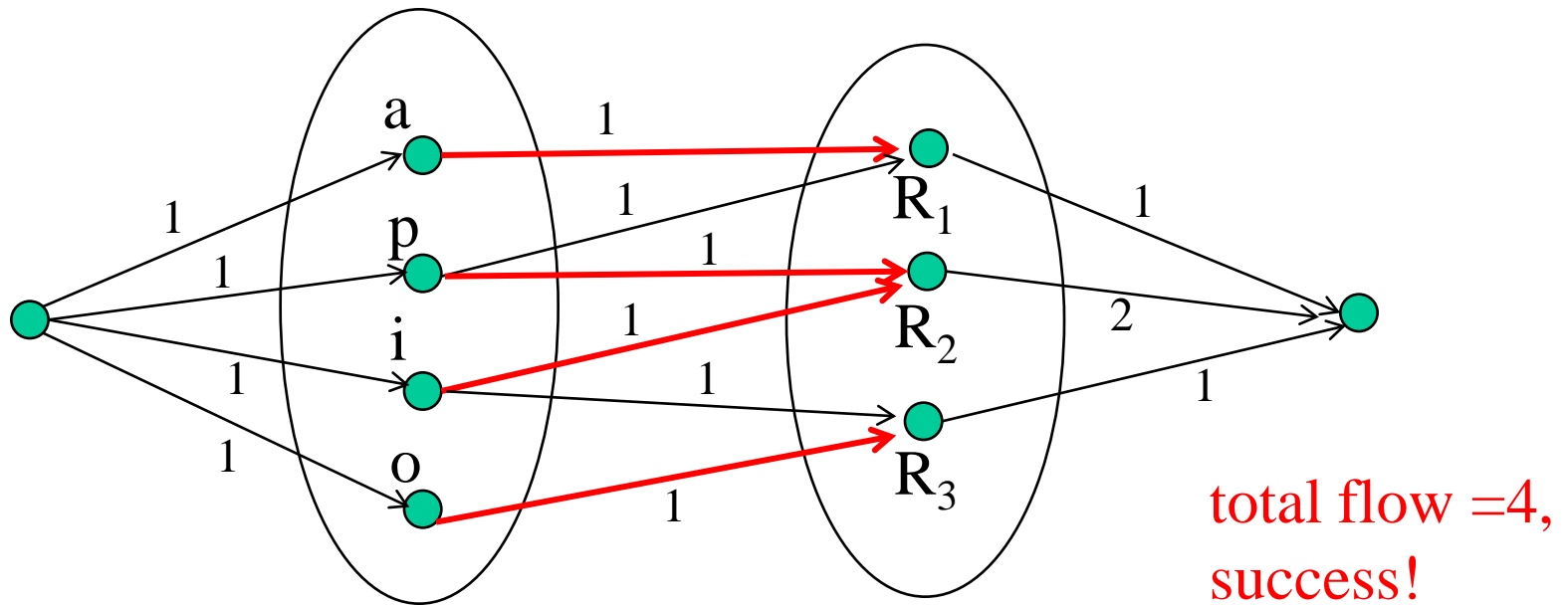
- R_1 : Take 1 from {a, p}
 - R_2 : Take 2 from {p, d, i}
 - R_3 : Take 1 from {i, o}
-
- Alice has taken: {a, p, i, o}
 - Bob has taken {p, d, o} **NOT Satisfied!**

Checking



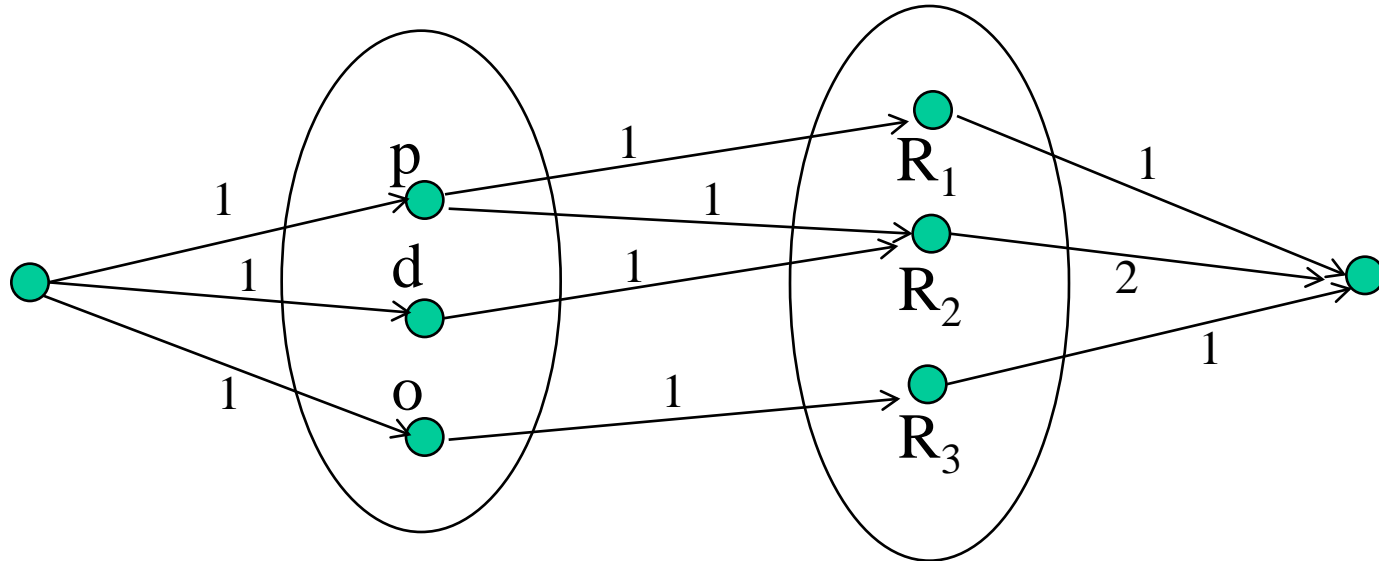
- Alice has taken: {a, p, i, o}

Checking



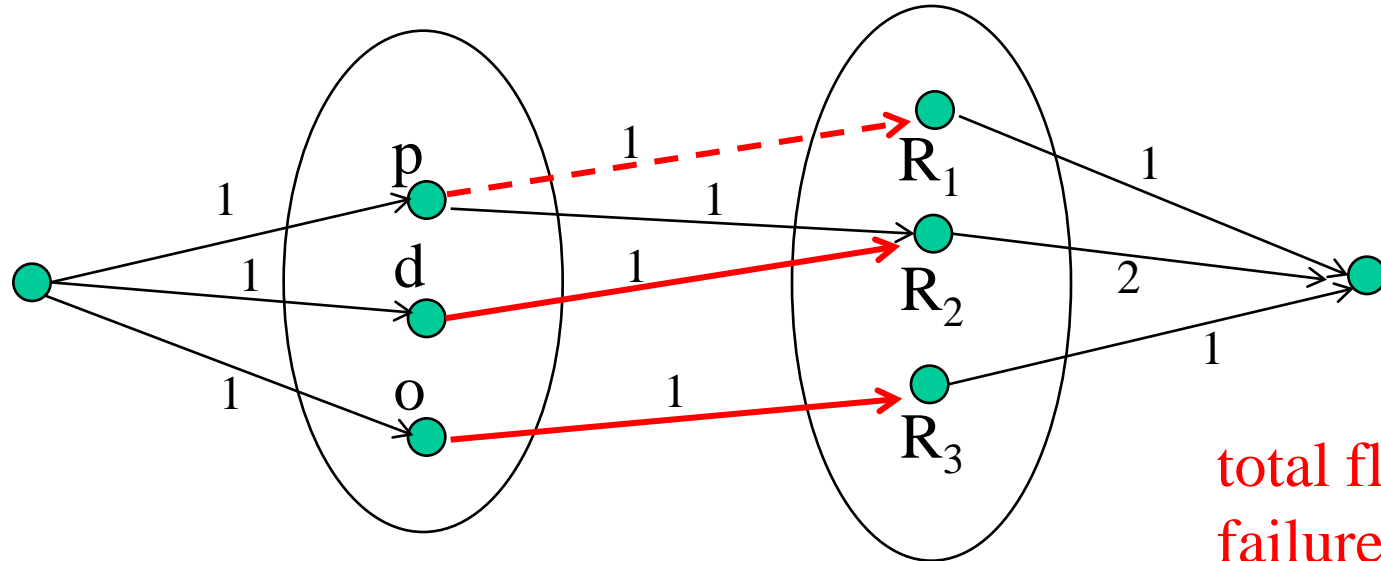
- Alice has taken: {a, p, i, o}

Checking



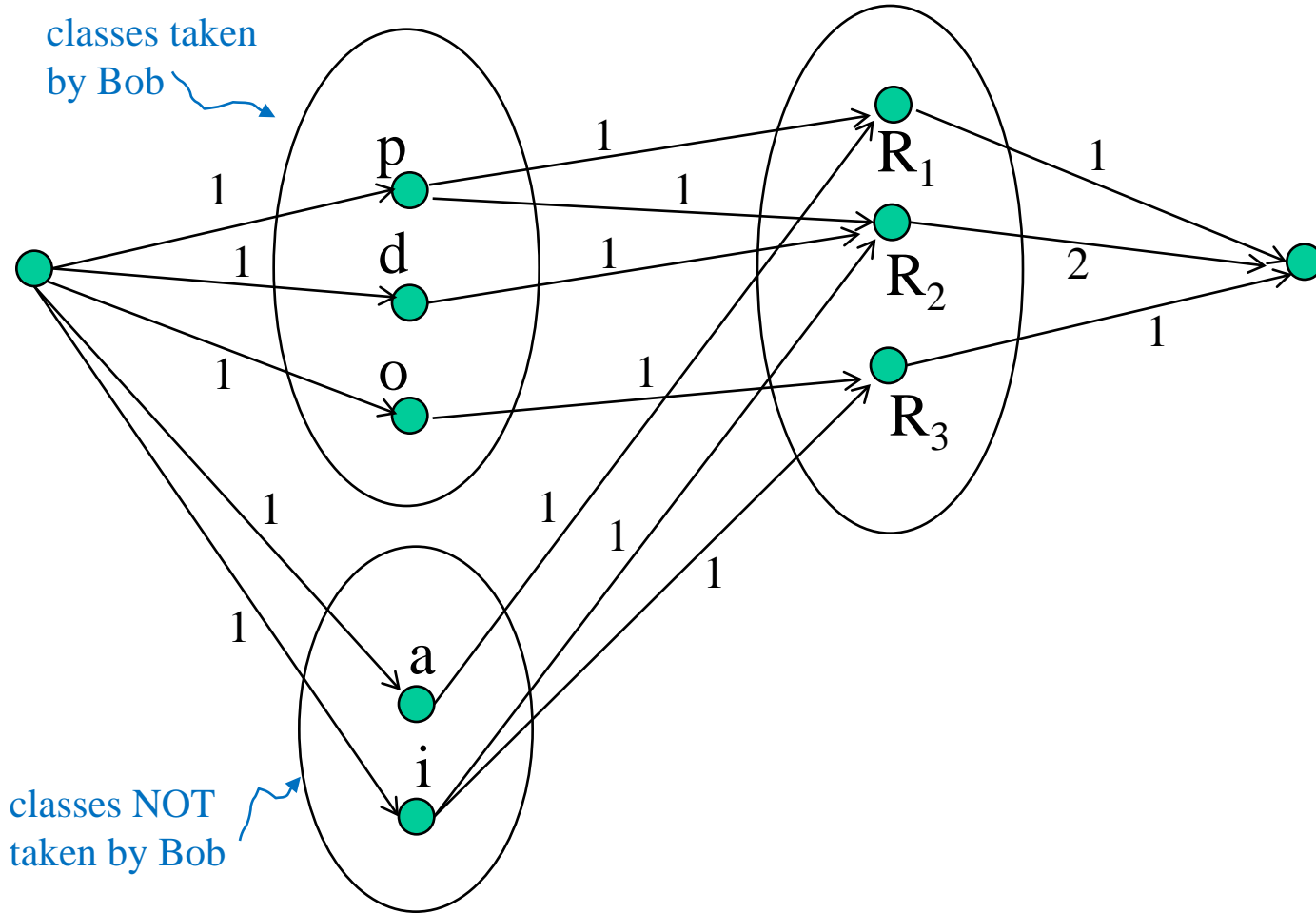
- Bob has taken: {p, d, o}

Checking

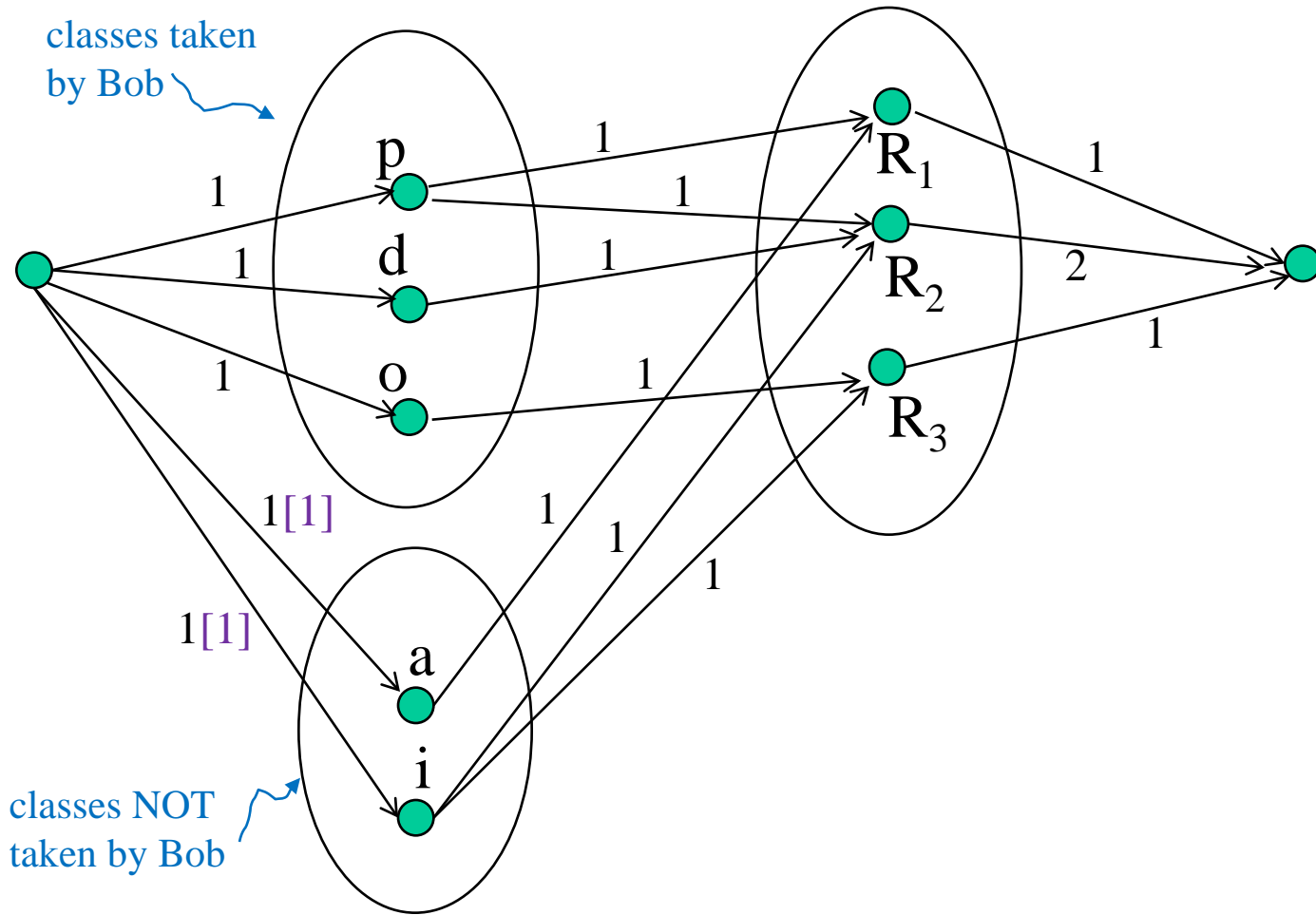


- Bob has taken: {p, d, o}

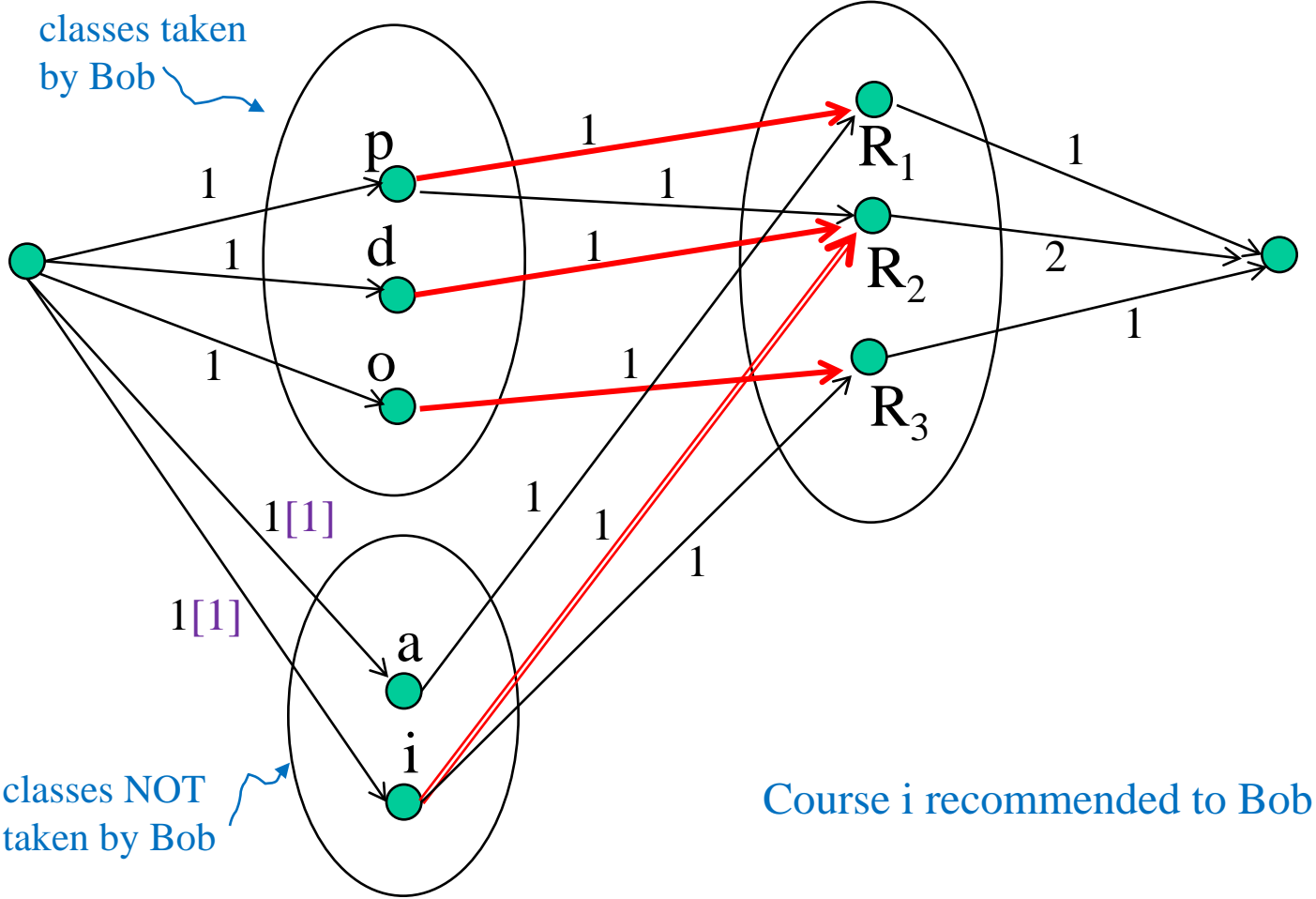
Recommendations



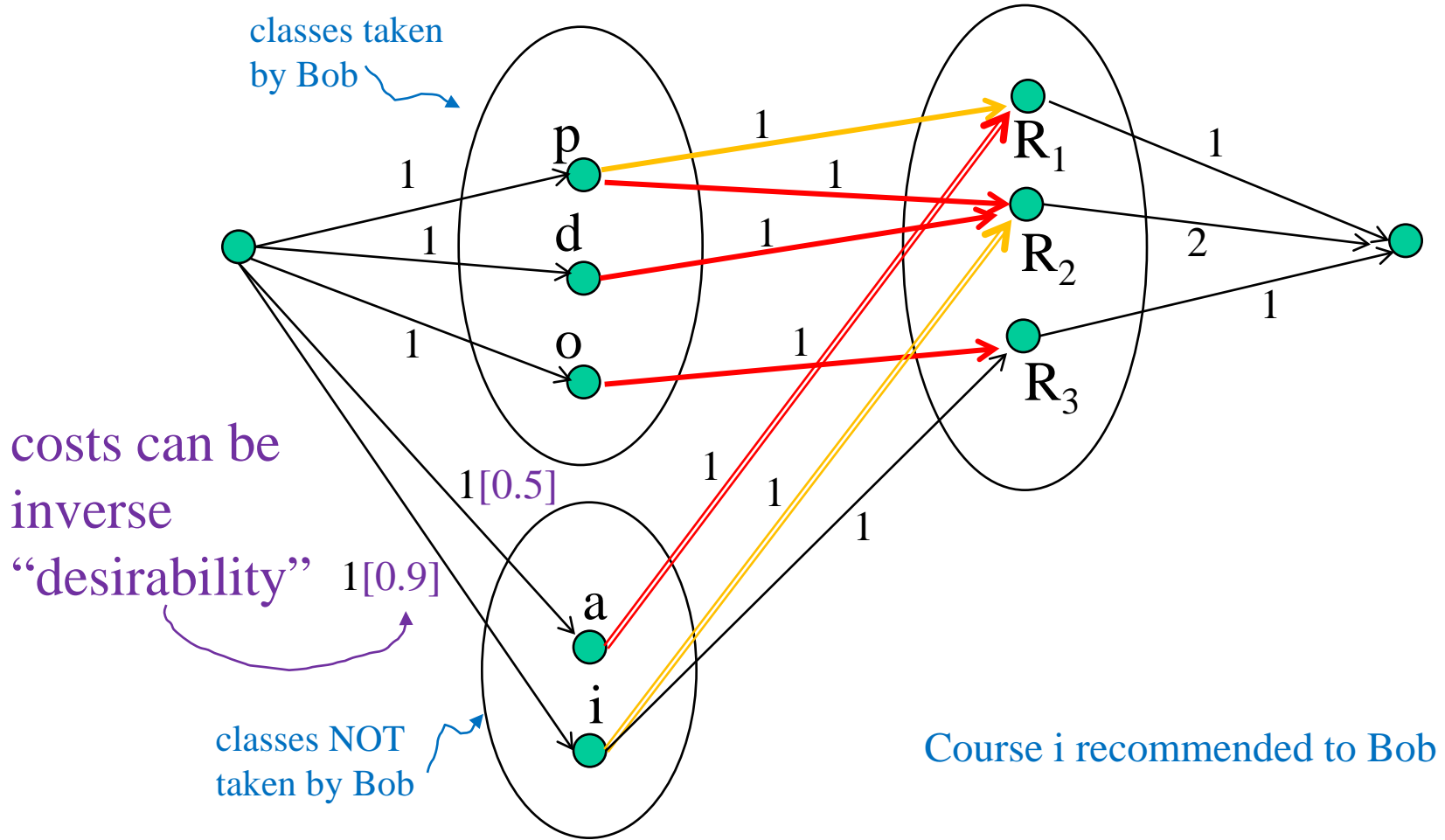
Recommendations



Recommendations



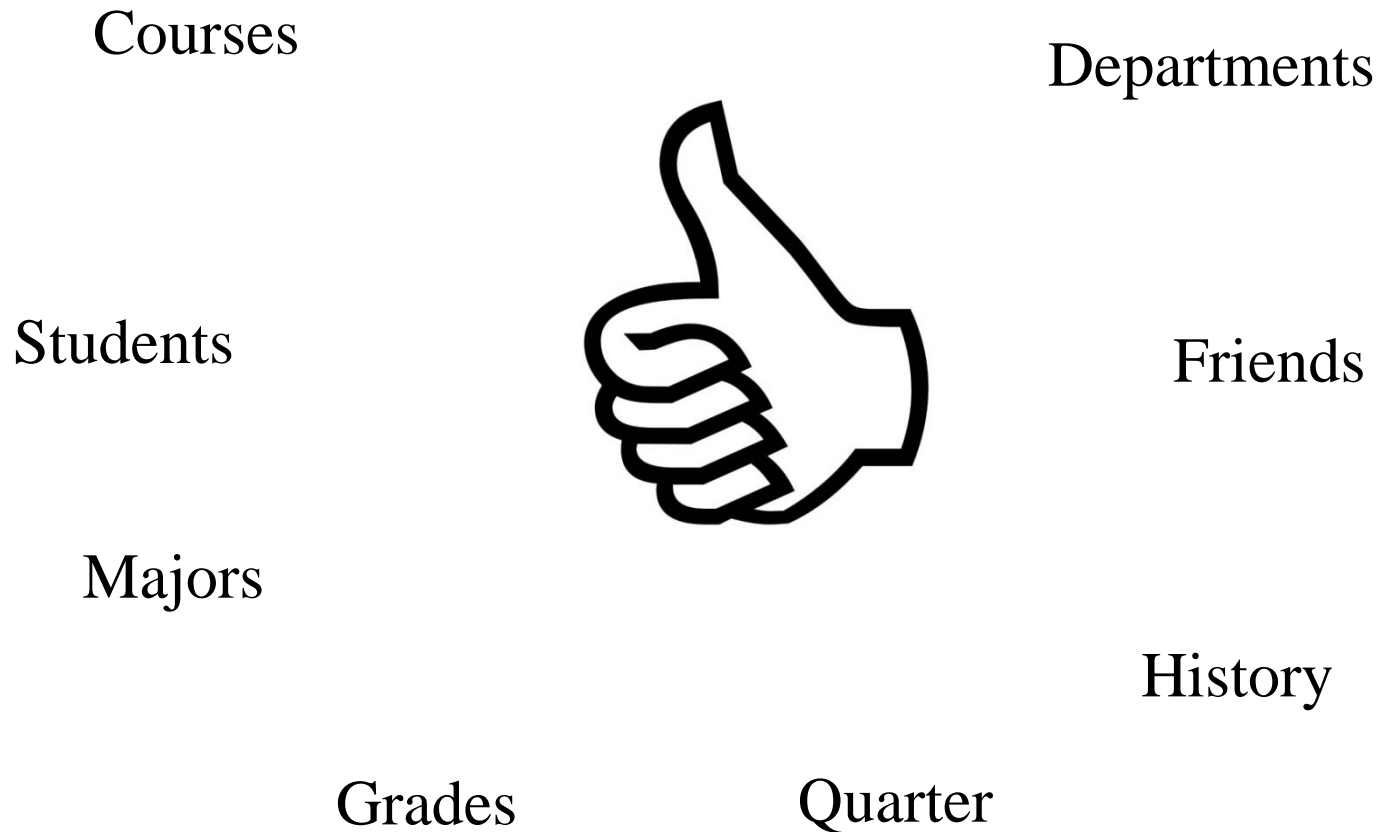
Recommendations



Additional Features

- Preference scores for courses
- Units requirements
- Forbidden pairs
 - Example: Take 3 from {a, b, c, d, e, f, g};
forbidden: {(a,c), (d,e), (d,g)}
- and many more...

What and How to Recommend?




Interface: Meld Search/Recommend

- What are you looking for?
- Recommend based on what?
- Order results how?
- Constraints?


Interface: Meld Search/Recommend

Target:

course	
major	
instructor	
student	
quarter	

Interface: Meld Search/Recommend


Target:

course 

Courses in Dept:

Course Keywords:

Recommend based on:

students (similar tastes)	
students (similar grades)	
students (similar courses)	
course history	
-	

Interface: Meld Search/Recommend

Target:

course	▼
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Courses in Dept:	
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Course Keywords:	
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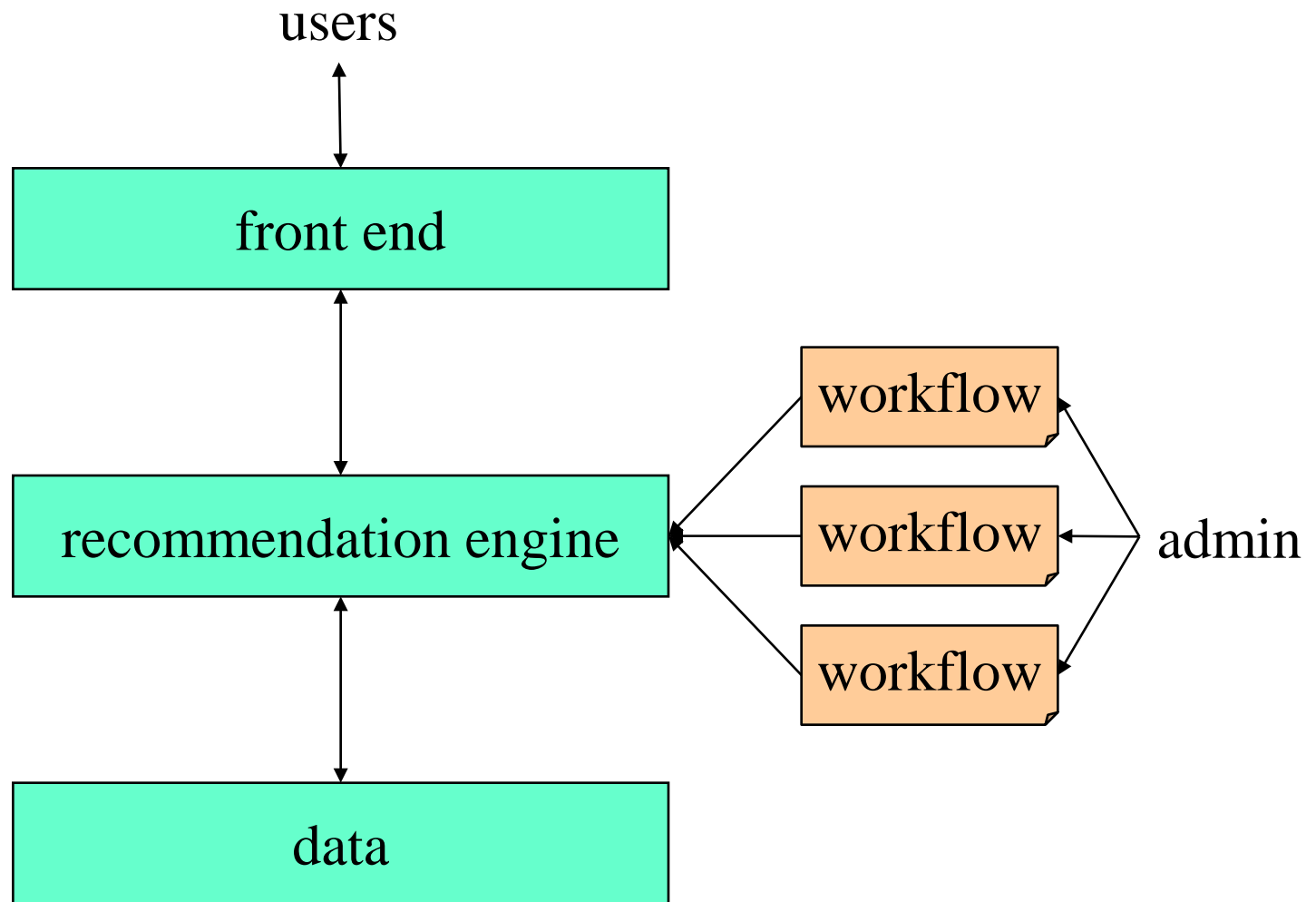
Recommend based on:

students (similar tastes)	▼
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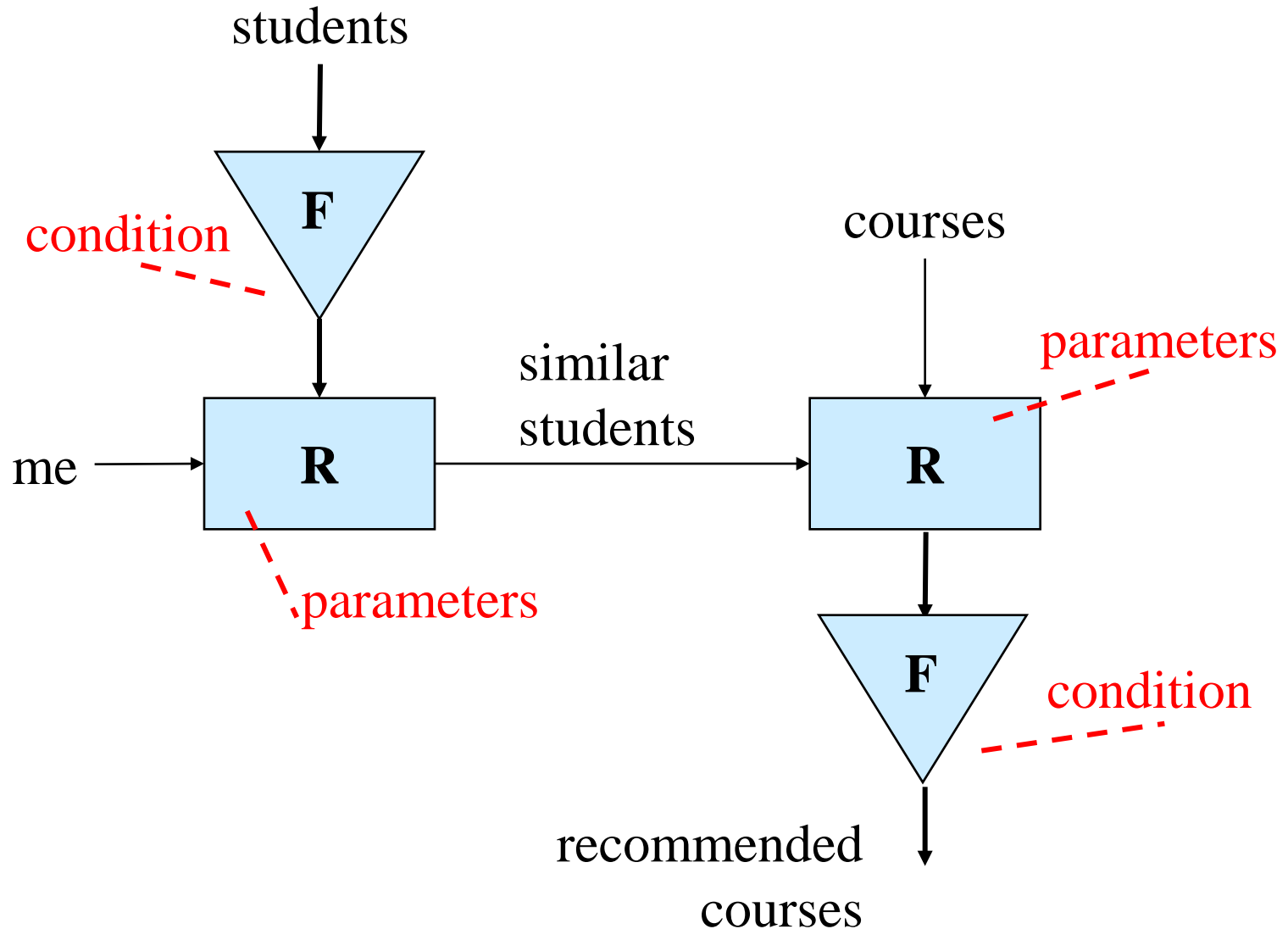
Students in Dept:	
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Students in Class:	
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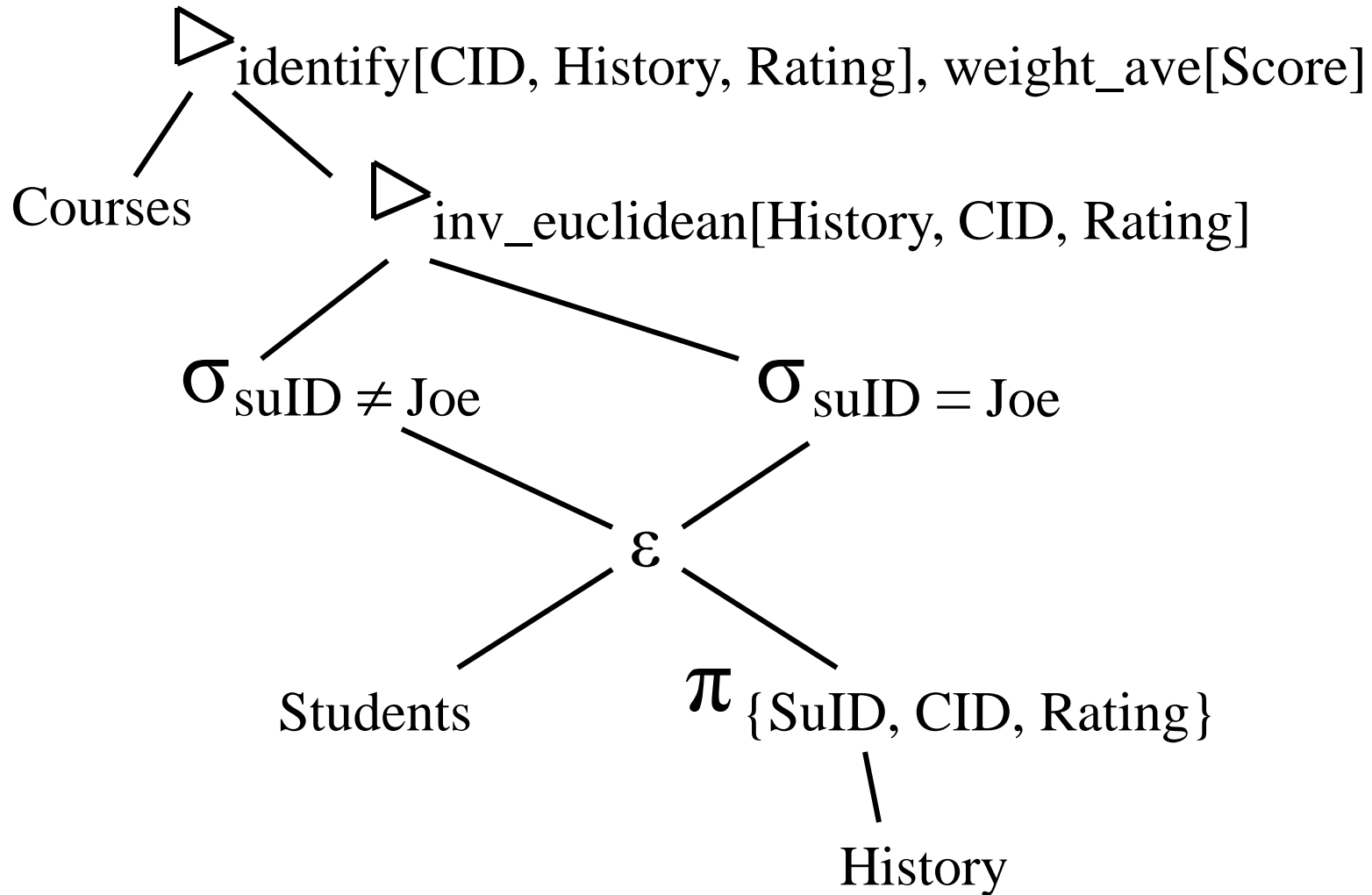
Goal



Goal: Recommendation Workflow



FlexRecs



Compare Example: Jaccard

SStudents			
11	Joe	...	1.00
12	Sally	...	0.66
13	Fred	...	0.33

Cjaccard[Courses]

Score

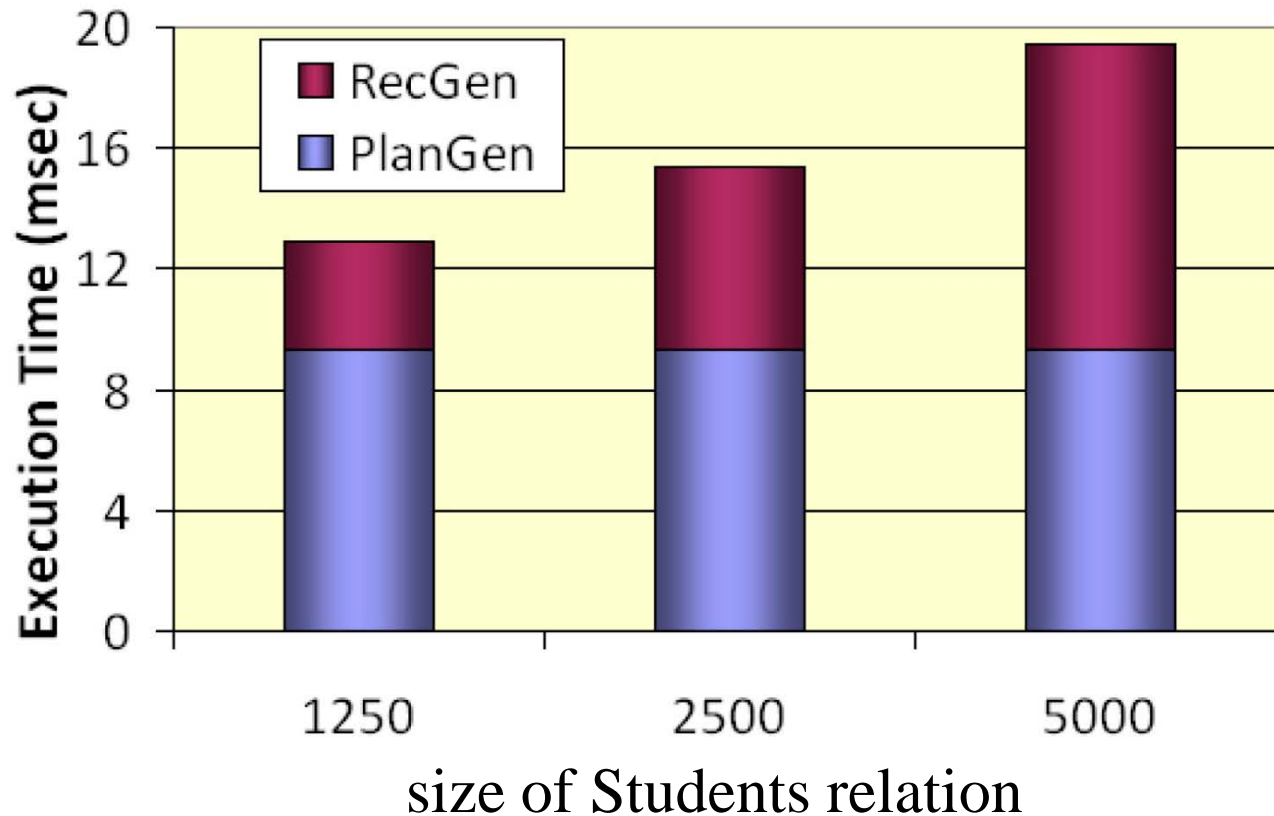
EStudents					SueStudents				
11	Joe	11	C010	Art	11	Sue	11	C010	Art
		11	C020	Comp			11	C020	Comp
12	Sally	12	C010	Art					
		12	C020	Comp					
		12	C030	Bio					
13	Fred	13	C010	Art					
		13	C030	Bio					

Courses

Systems Issues

- How expensive
- Impact of comparison functions
- Scalability
- Optimization

Experiments: Generation, Execution



- same workflow as in our running example

Summary

- CourseRank
- Recommendations with Constraints
- FlexRecs

CourseRank

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