EXPLORATION & EXPLOITATION
IN ORGANIZATIONAL LEARNING

MODEL

Exploitation & Exploration

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EXPLORATION AND EXPLOITATION IN ORGANIZATIONAL LEARNING*

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This paper considers the relation between the exploration of new possibilities and the exploitation of old certainties in organizational learning. It examines some complications in allocating resources between the two, particularly those introduced by the distribution of costs and benefits across time and space, and the effects of ecological interaction. Two general situations involving the development and use of knowledge in organizations are modeled. The first is the case of mutual learning between members of an organization and an organizational code. The second is the case of learning and competitive advantage in competition for primacy. The paper develops an argument that adaptive processes, by refining exploitation more rapidly than exploration, are likely to become effective in the short run but self-destructive in the long run. The possibility that certain common organizational practices ameliorate that tendency is assessed.
(ORGANIZATIONAL LEARNING: RISK TAKING; KNOWLEDGE AND COMPETITIVE ADVANTAGE)

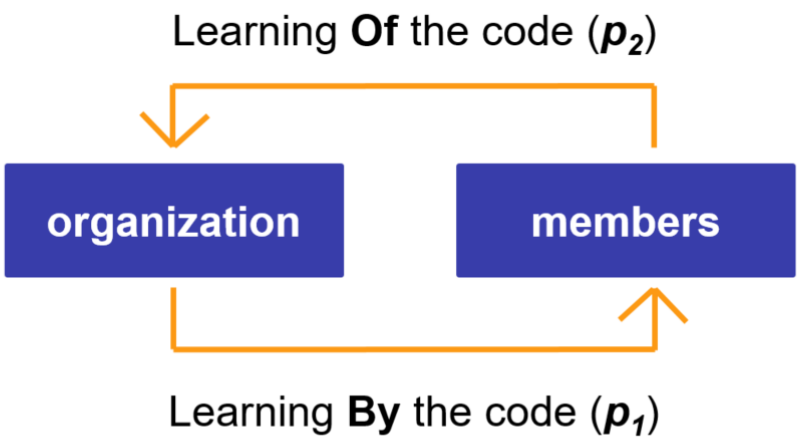
Organizational Theory

Technology Innovation

Decision in Organizational Structure

Exploitation & Exploration

Mutual Learning Process

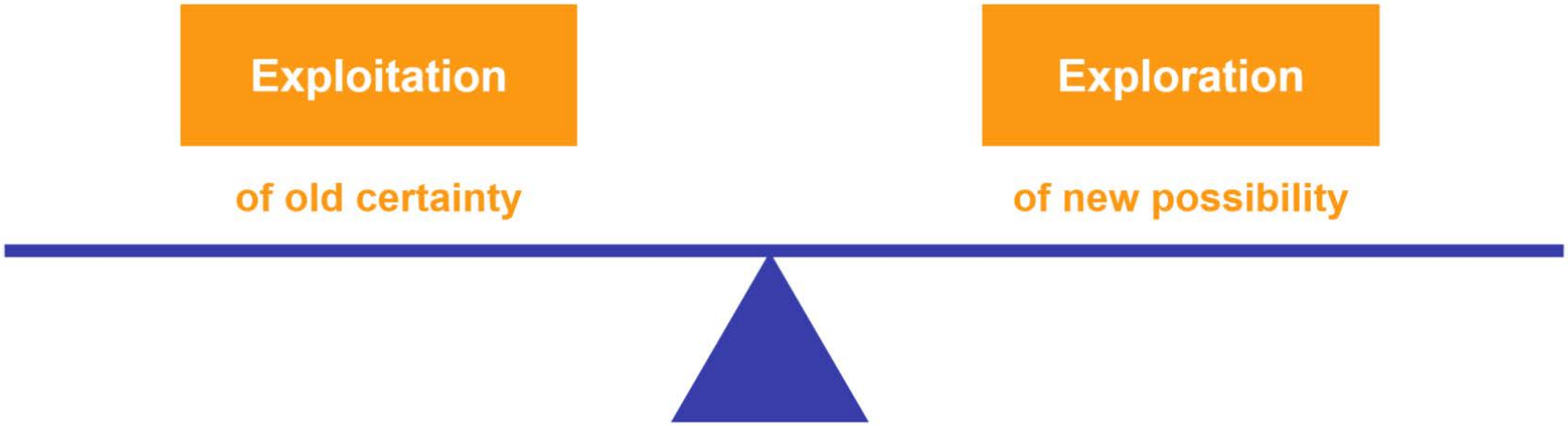


Assumptions

1) Organizations learn routines based on the knowledge of its members

2) Members also learn from the organization through a process of socialization

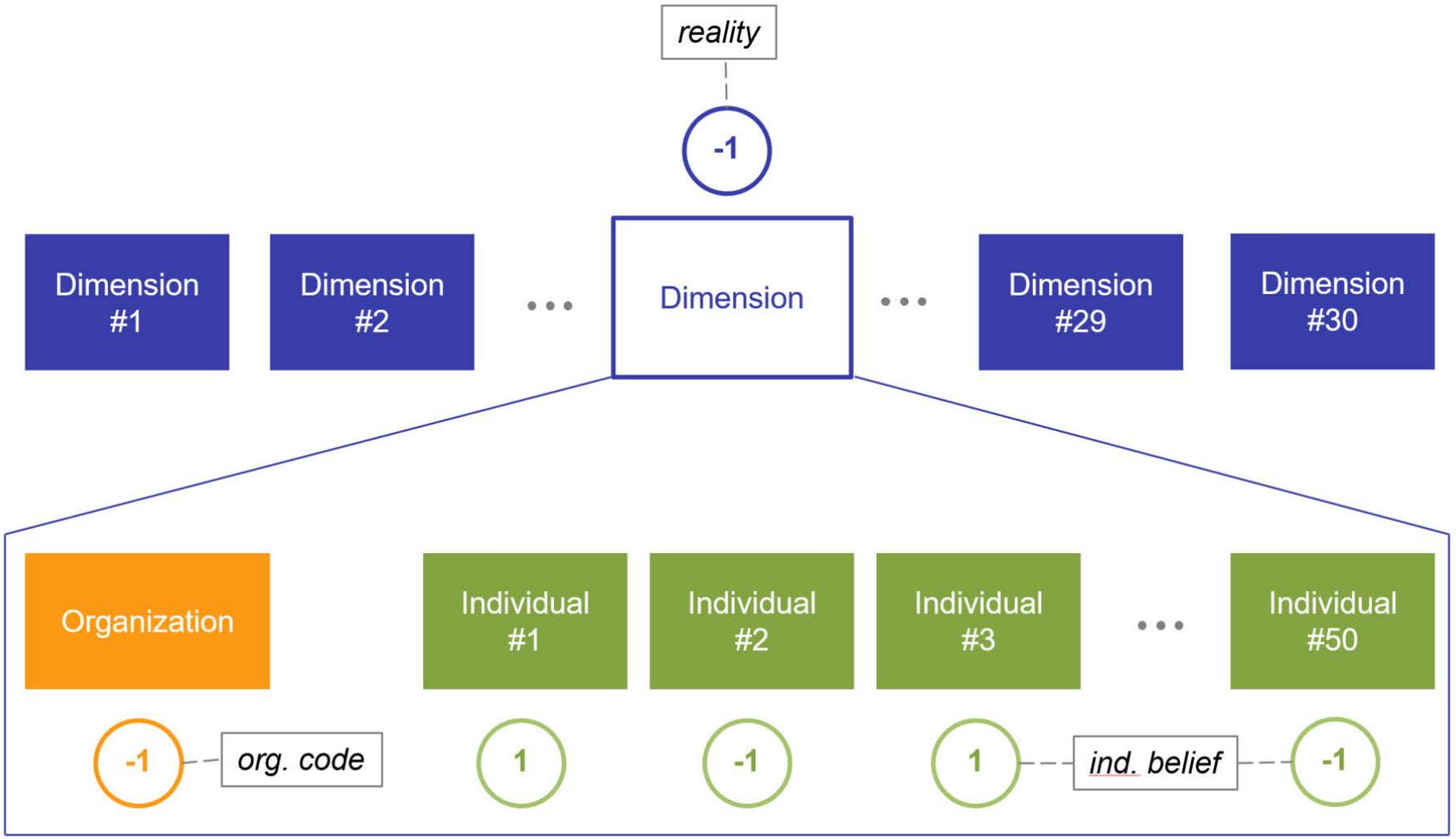
Exploitation & Exploration



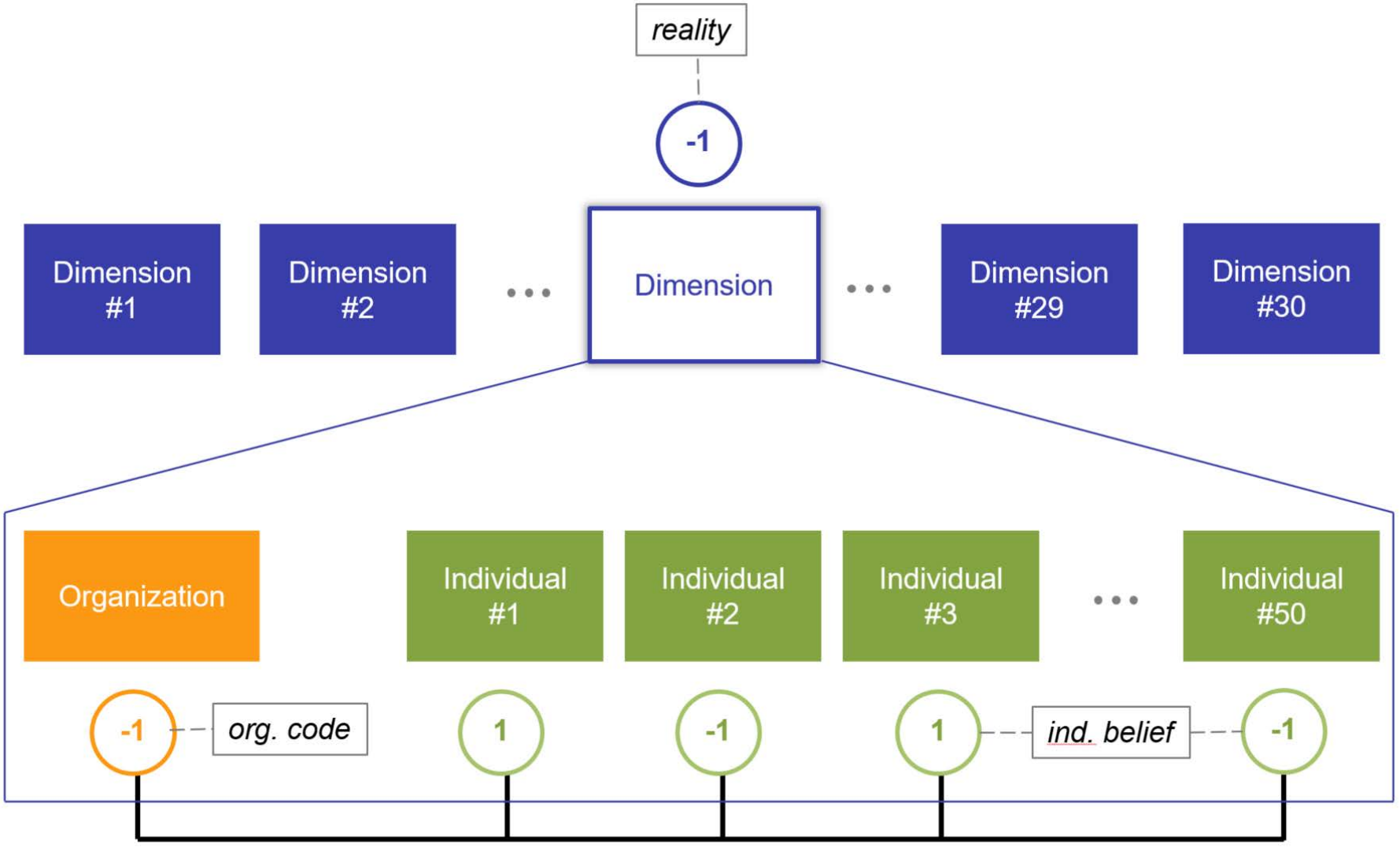
Balancing between Exploration and Exploitation is a Key to Success

RULES & VARIABLES

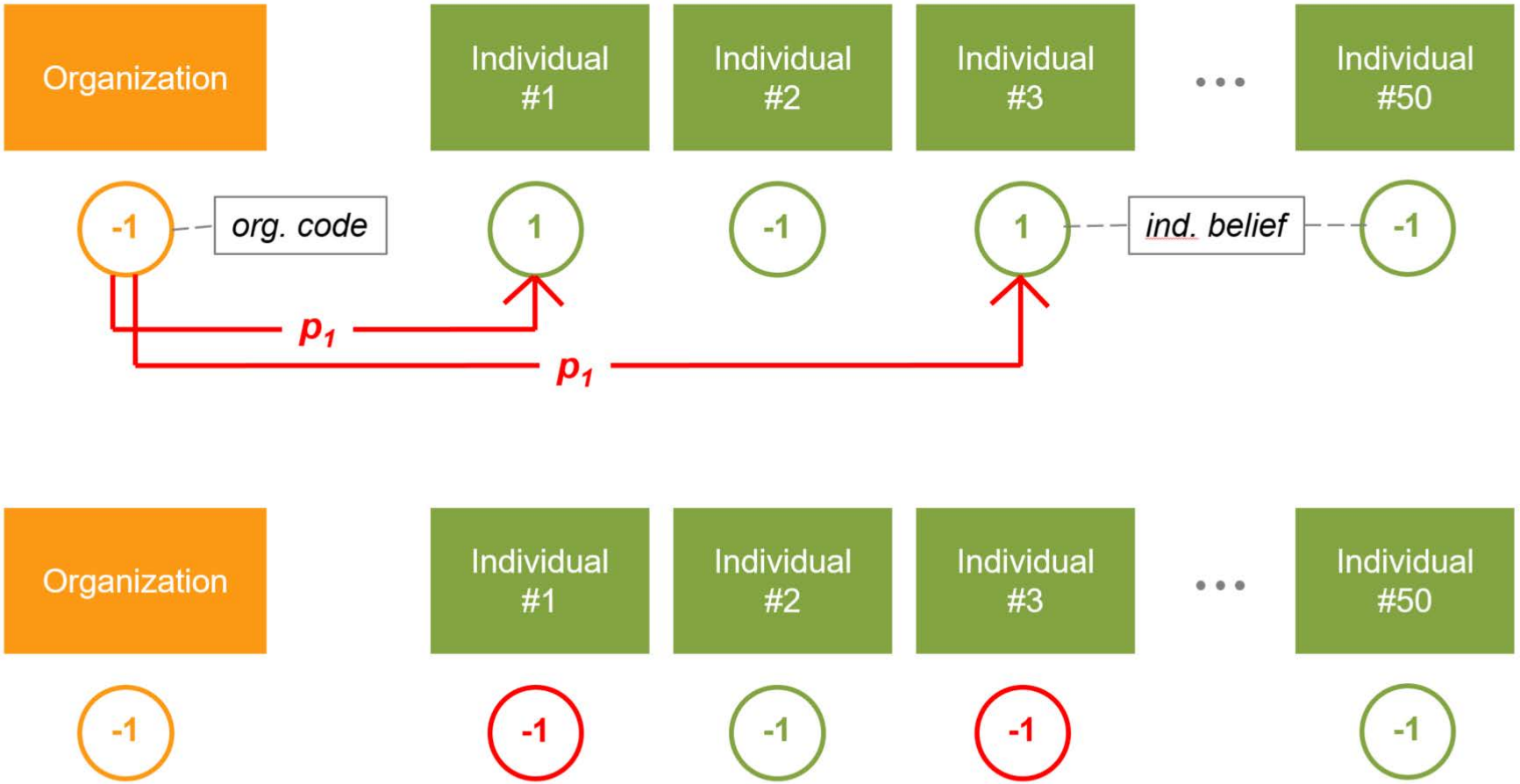
Rules & Variables



Rules & Variables



Socialization



Rules & Variables

Superior Group

	1	-1	1	1	-1	-1	-1		-1
	Dimension #1	Dimension #2	Dimension #3	Dimension #4	Dimension #5	Dimension #6	Dimension #7	...	Dimension #30
	1	1	1	-1	-1	1	1		-1
	-1	1	-1	1	1	-1	1		-1
	1	1	-1	-1	-1	-1	-1		-1
	1	1	-1	1	-1	1	-1		1
	1	-1	-1	1	1	-1	-1		-1
	1	1	1	-1	-1	-1	1		-1

Rules & Variables

Superior Group

	Dimension #1	Dimension #2	Dimension #3	Dimension #4	Dimension #5	Dimension #6	Dimension #7	...	Dimension #30
	1	-1	1	1	-1	-1	-1		-1
	1	1	1	-1	-1	1	1		-1
	-1	1	-1	1	1	-1	1		-1
	1	1	-1	-1	-1	-1	-1		-1
	1	1	-1	1	-1	1	-1		1
	1	-1	-1	1	1	-1	-1		-1
	1	1	1	-1	-1	-1	1		-1

Rules & Variables

Learning Of the Code

	Dimension #1	Dimension #2	Dimension #3	Dimension #4	Dimension #5	Dimension #6	Dimension #7	...	Dimension #30
	1	1	**1**	-1	-1	**1**	**1**		**-1**
	-1	1	-1	1	1	-1	1		-1
	1	1	**-1**	-1	-1	**-1**	**-1**		-1
	1	1	-1	1	-1	1	-1		1
	1	-1	**-1**	1	1	**-1**	**-1**		-1
	1	1	**1**	-1	-1	**-1**	**1**		-1

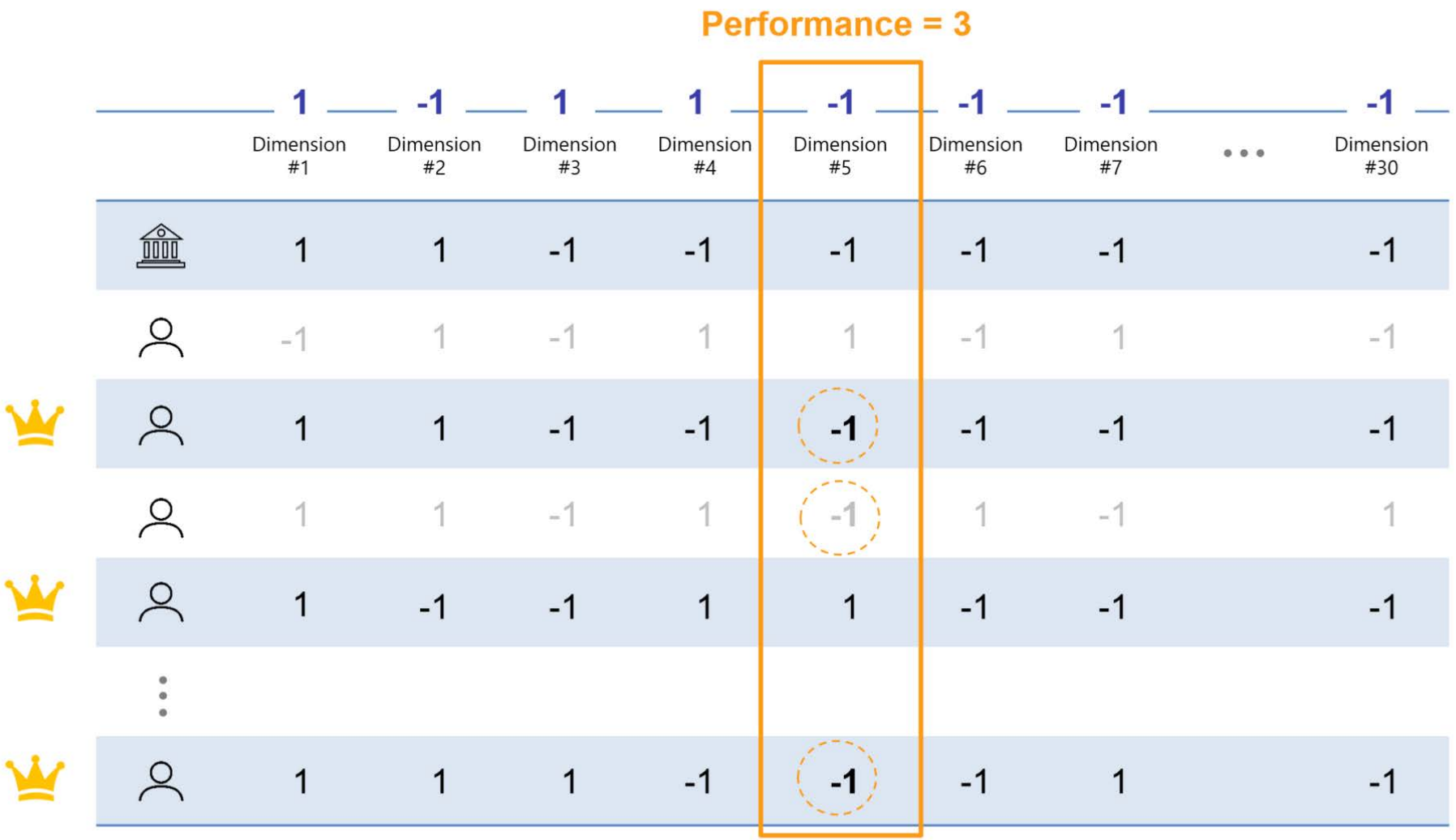
Rules & Variables

Learning Of the Code

	Dimension #1	Dimension #2	Dimension #3	Dimension #4	Dimension #5	Dimension #6	Dimension #7	...	Dimension #30
	1	1	-1	-1	-1	-1	-1		-1
	-1	1	-1	1	1	-1	1		-1
 	1	1	-1	-1	-1	-1	-1		-1
	1	1	-1	1	-1	1	-1		1
 	1	-1	-1	1	1	-1	-1		-1
 	1	1	1	-1	-1	-1	1		-1

Rules & Variables

Performance



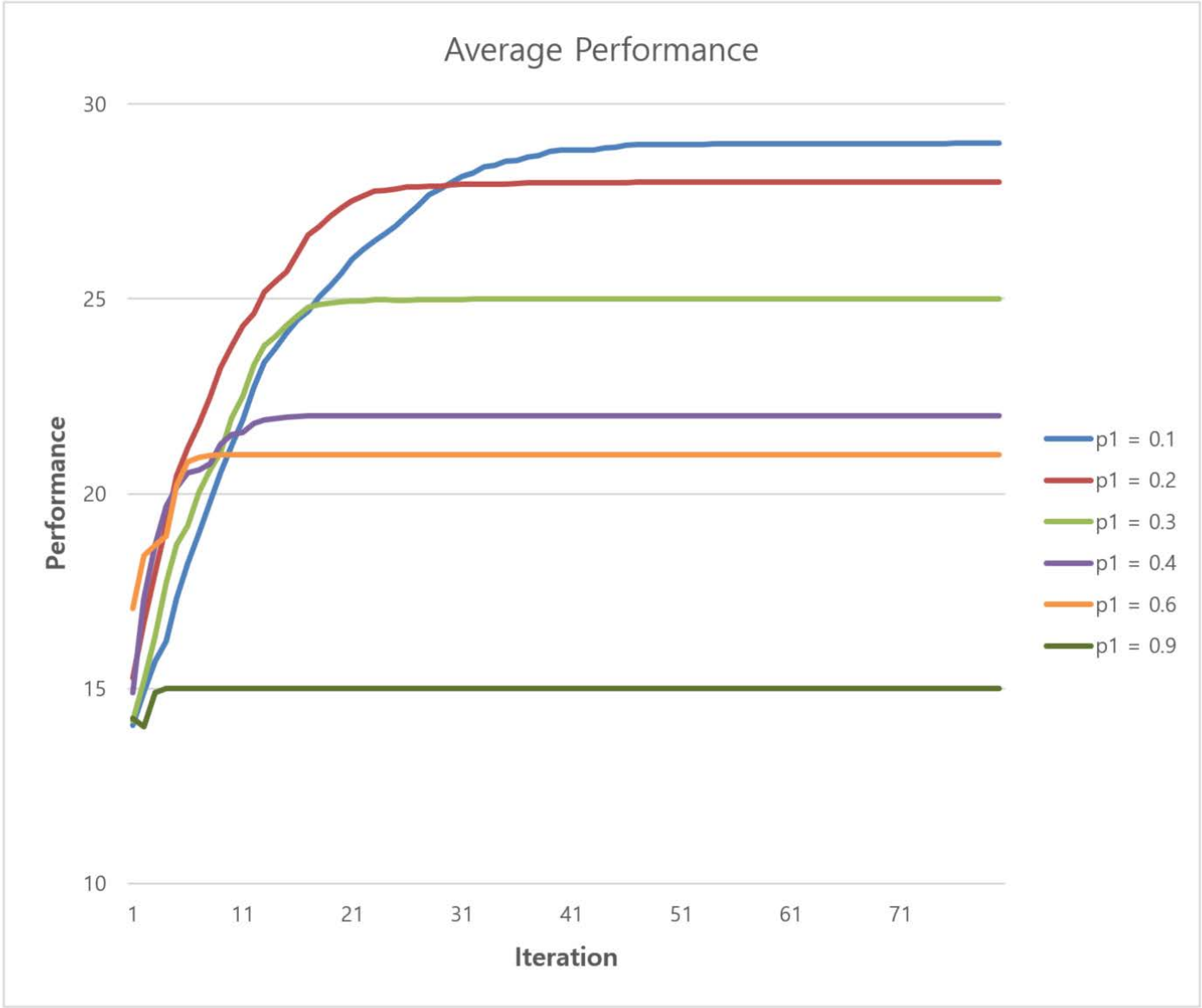
Rules & Variables

1. There are 30 dimensions, 50 people and 200 times of iteration with random value
2. At each iteration, socialization and learning by the code happen with possibility p_1 and p_2
3. Sum of performance in every dimension at period t (iteration t)

   = performance of period t
4. There could be 0~50 point in each dimension thus total 0~1500 point of performance at time t

Simulation

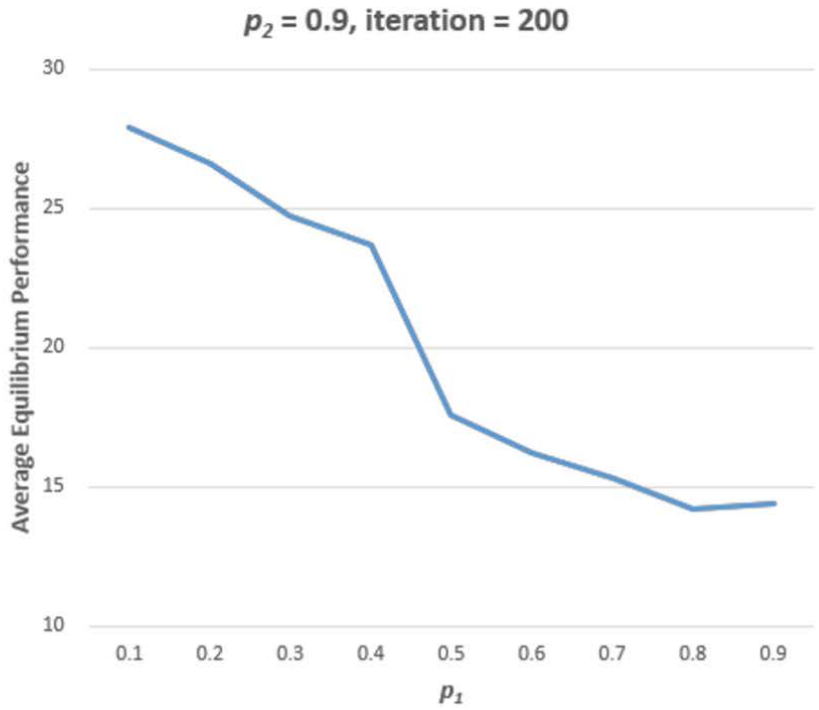
Rules & Variables



Rules & Variables

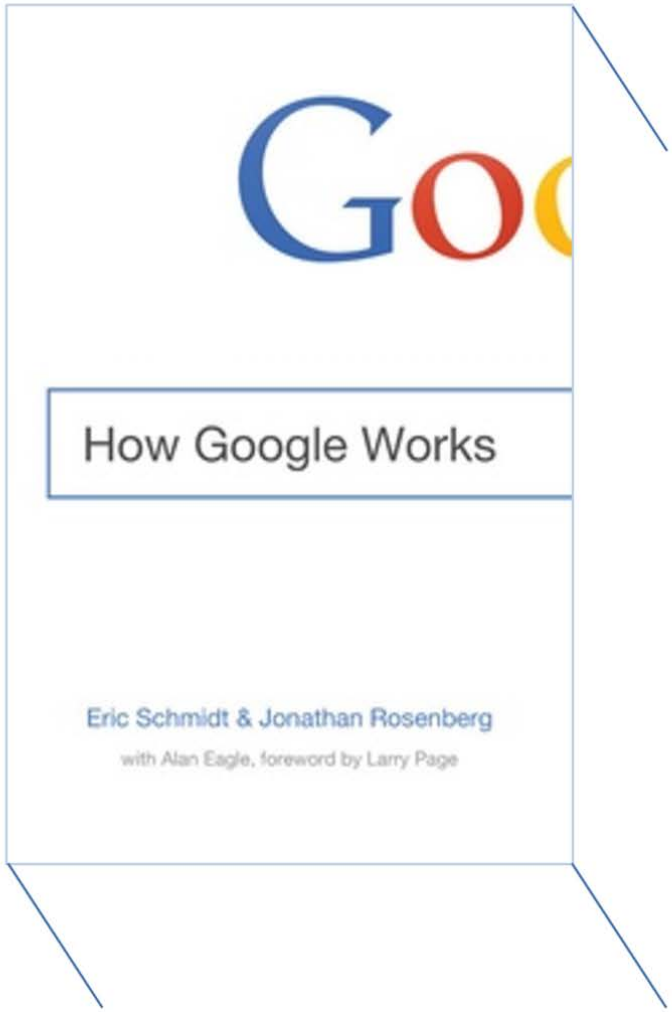
Equilibrium Performance at Iteration=200

p_1	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	Average
0.1	30	29	29	26	29	29	30	20	28	29	**27.9**
0.2	27	28	27	27	28	25	27	27	21	29	**26.6**
0.3	28	25	25	22	28	13	26	27	27	26	**24.7**
0.4	27	22	22	19	26	26	22	22	25	26	**23.7**
0.5	21	14	17	18	19	15	18	14	19	21	**17.6**
0.6	15	21	16	16	17	16	14	14	18	15	**16.2**
0.7	14	13	15	17	16	22	14	11	15	16	**15.3**
0.8	14	13	15	12	13	13	15	14	15	18	**14.2**
0.9	14	15	13	17	16	17	13	11	15	13	**14.4**



CONCLUSION & TAKEAWAYS

Conclusion & Takeaways



"… Once established, company culture is very difficult to change, because early on in a company's life a self-selection tendency sets in … If a company believes in a culture where everyone gets a say and decisions are made by committee, it will attract like-minded employees. But if that company tries to adopt a more **autocratic** or **combative approach**, it will have a very hard time getting employees to go along with it. Change like that not only goes against what the company stands for, it goes against its employees' personal beliefs. "

- Eric Schmidt, <How Google Works>

Prepared by

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GitHub Repository:
github.com/tyoon10/Exploration-and-Exploitation

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