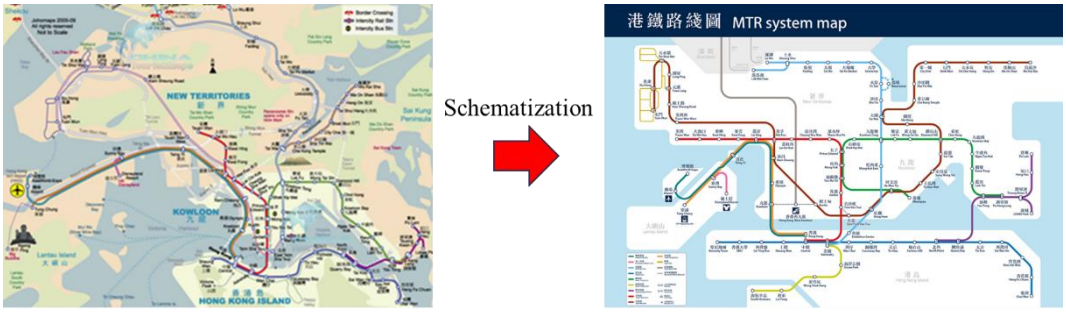
Cognitive experiment on schematization of metro lines (Official)

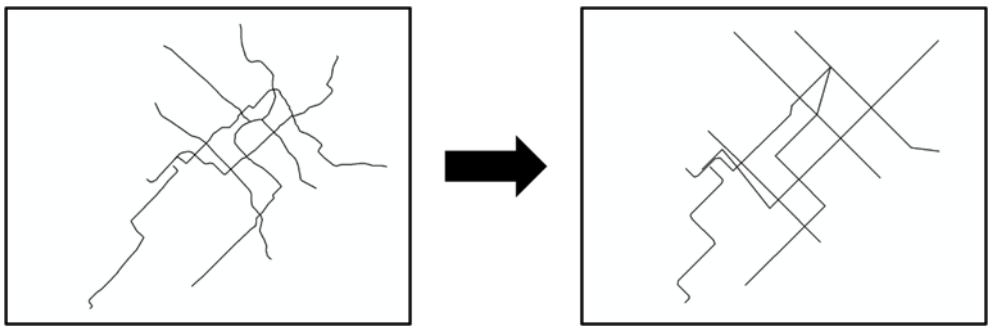
Schematic network maps are simplified representations of real-world geographic networks designed to help people perform tasks such as route planning and navigation quickly and accurately. One of the most common schematic network maps is schematic metro networks. In this map, the real shape of the lines is simplified to enhance the user experience when using it.



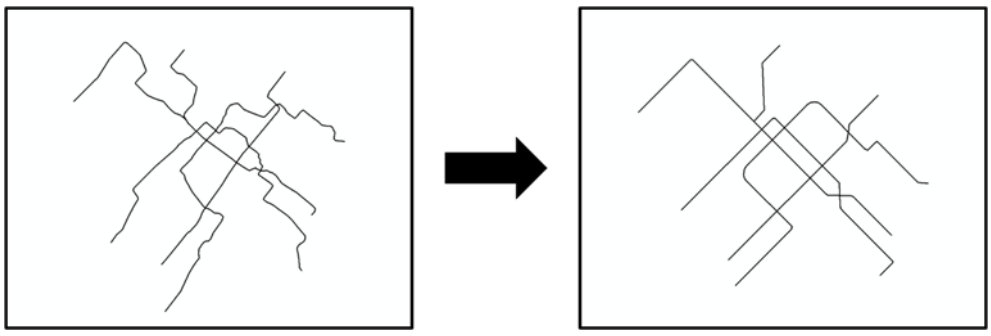
Original network with geographical reality

Schematic network with simplified and re-orientated lines

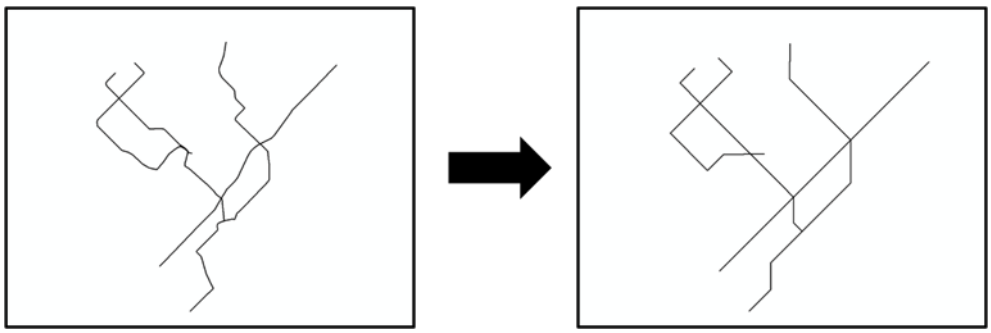
In this questionnaire, 26 Chinese original metro networks and their schematic networks are displayed. This questionnaire requires participants to score such complexity change after schematization for 26 metro networks using a 5-grade marking system (5: Very high, 4: High, 3: Medium, 2: Low, and 1: Very low).



Illustrative instance: “very high” level of complexity change



Illustrative instance: “medium” level of complexity change



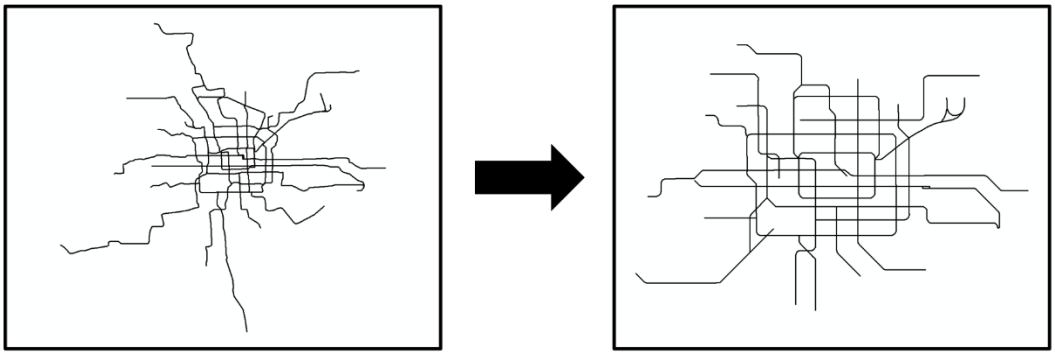
Illustrative instance: “very low” level of complexity change

1. Gender
   - ○ Male
   - ○ Female

2. Age
   - ○ < 18
   - ○ 18 ~ 30
   - ○ 31 ~ 40
   - ○ 41 ~ 50
   - ○ 51 ~ 60
   - ○ 61 ~ 70
   - ○ > 70

3. Cartography background?
   - ○ Yes
   - ○ No

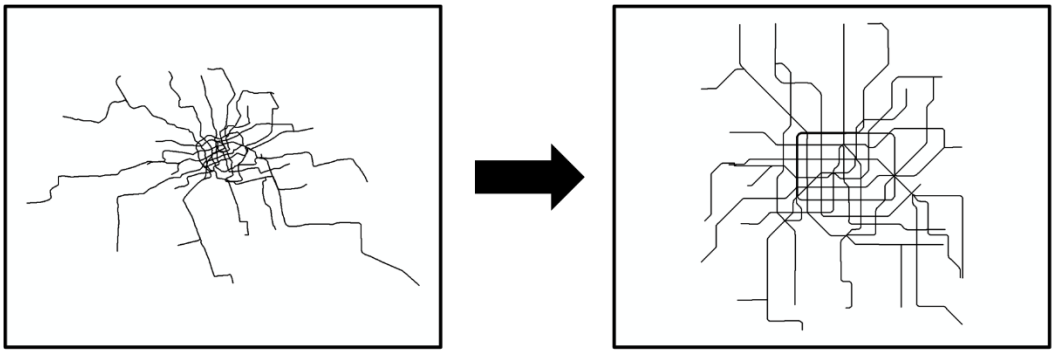
4. Score complexity change after schematization for Beijing metro networks



Beijing original metro network　　Beijing schematic metro network

	1 (Very low)	2 (Low)	3 (Medium)	4 (High)	5 (Very high)
Complexity change	○	○	○	○	○

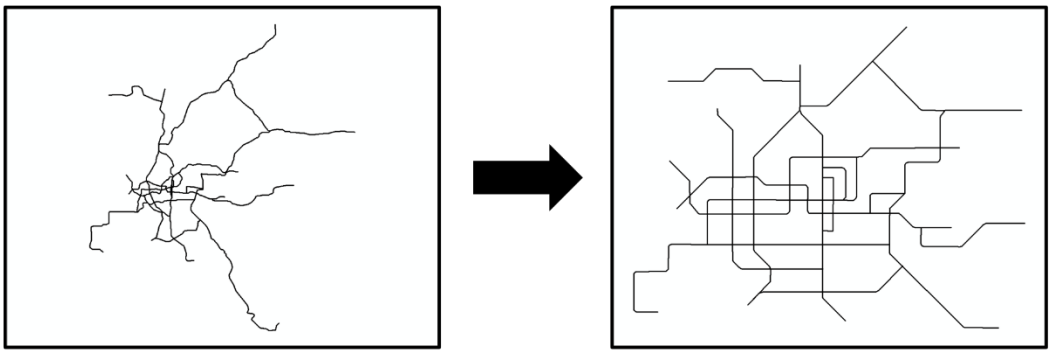
5. Score complexity change after schematization for Shanghai metro networks



Shanghai original metro network　　Shanghai schematic metro network

	1 (Very low)	2 (Low)	3 (Medium)	4 (High)	5 (Very high)
Complexity change	○	○	○	○	○

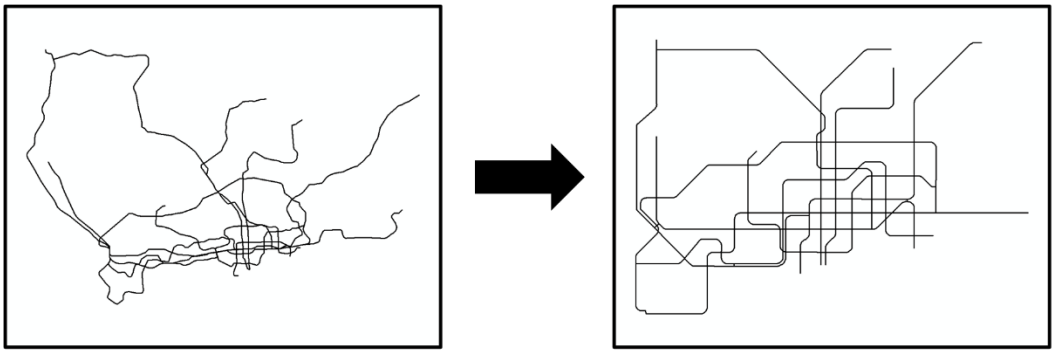
6. Score complexity change after schematization for Guangzhou metro networks



Guangzhou original metro network　　Guangzhou schematic metro network

	1 (Very low)	2 (Low)	3 (Medium)	4 (High)	5 (Very high)
Complexity change	○	○	○	○	○

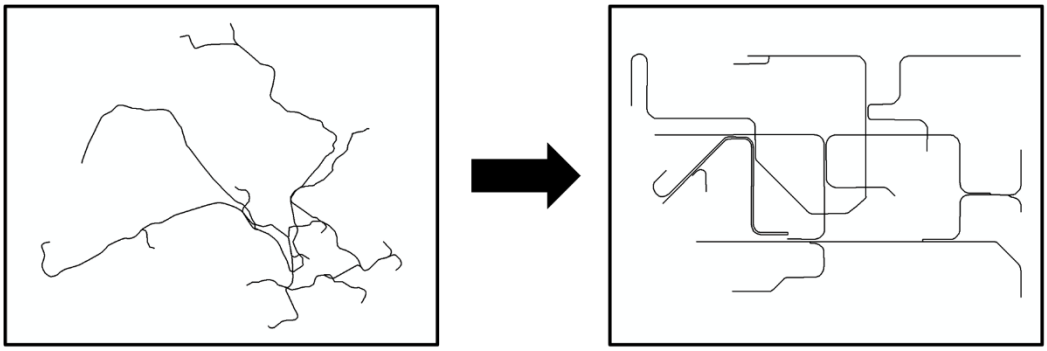
7. Score complexity change after schematization for Shenzhen metro networks



Shenzhen original metro network　　Shenzhen schematic metro network

	1 (Very low)	2 (Low)	3 (Medium)	4 (High)	5 (Very high)
Complexity change	○	○	○	○	○

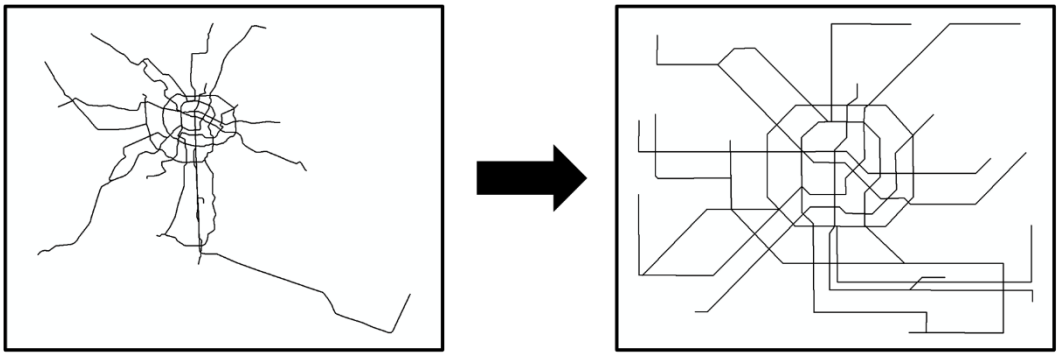
8. Score complexity change after schematization for Hong Kong metro networks



Hong Kong original metro network　　Hong Kong schematic metro network

	1 (Very low)	2 (Low)	3 (Medium)	4 (High)	5 (Very high)
Complexity change	○	○	○	○	○

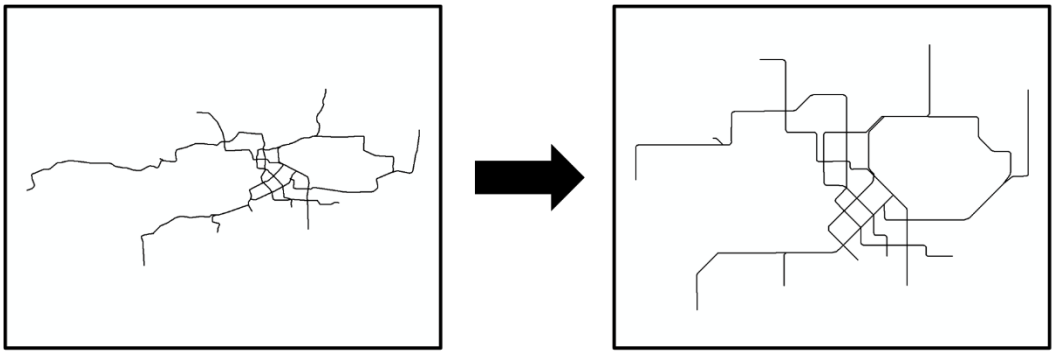
9. Score complexity change after schematization for Chengdu metro networks



Chengdu original metro network　　Chengdu schematic metro network

	1 (Very low)	2 (Low)	3 (Medium)	4 (High)	5 (Very high)
Complexity change	○	○	○	○	○

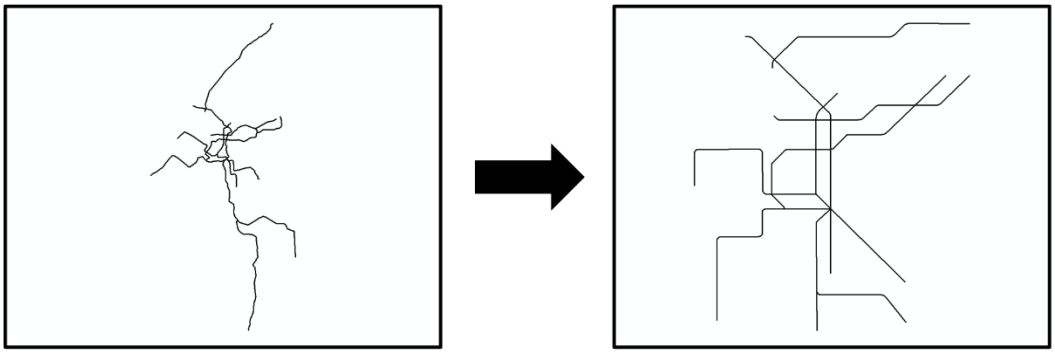
10. Score complexity change after schematization for Hangzhou metro networks



Hangzhou original metro network　　Hangzhou schematic metro network

	1 (Very low)	2 (Low)	3 (Medium)	4 (High)	5 (Very high)
Complexity change	○	○	○	○	○

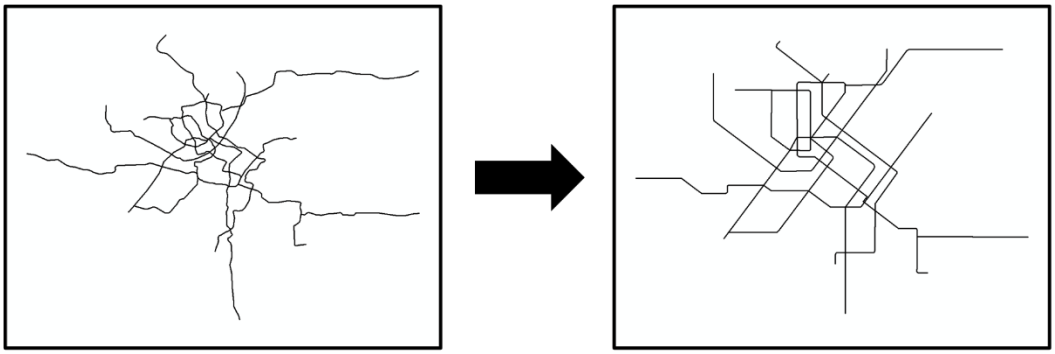
11. Score complexity change after schematization for Nanjing metro networks



Nanjing original metro network　　Nanjing schematic metro network

	1 (Very low)	2 (Low)	3 (Medium)	4 (High)	5 (Very high)
Complexity change	○	○	○	○	○

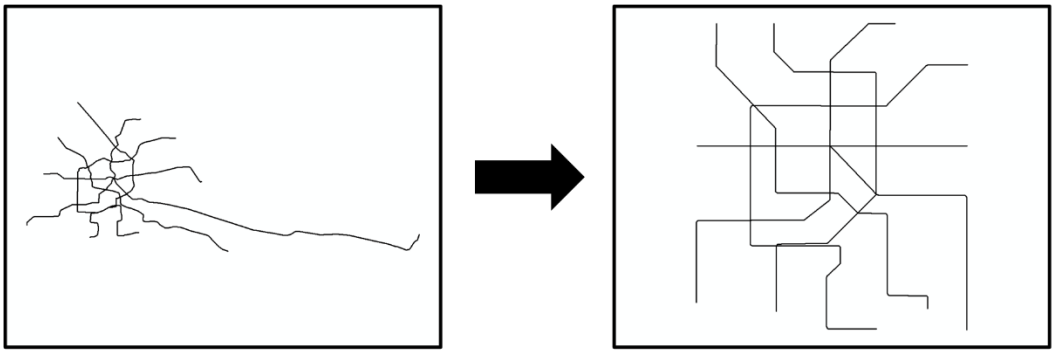
12. Score complexity change after schematization for Wuhan metro networks



Wuhan original metro network　　Wuhan schematic metro network

	1 (Very low)	2 (Low)	3 (Medium)	4 (High)	5 (Very high)
Complexity change	○	○	○	○	○

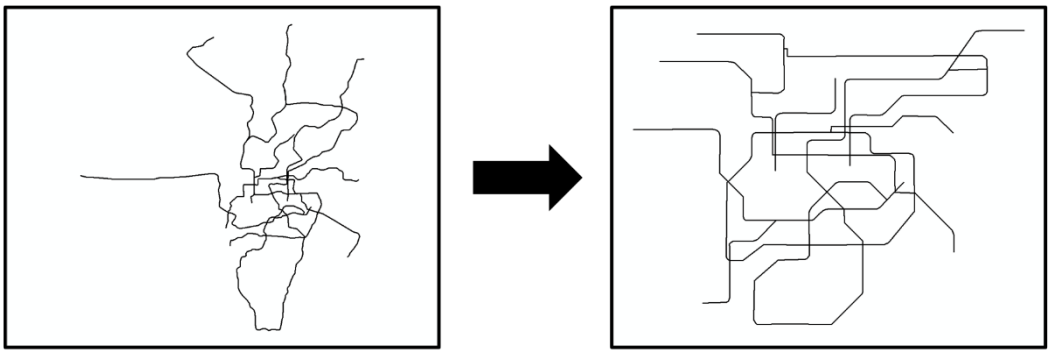
13. Score complexity change after schematization for Tianjin metro networks



Tianjin original metro network　　Tianjin schematic metro network

	1 (Very low)	2 (Low)	3 (Medium)	4 (High)	5 (Very high)
Complexity change	○	○	○	○	○

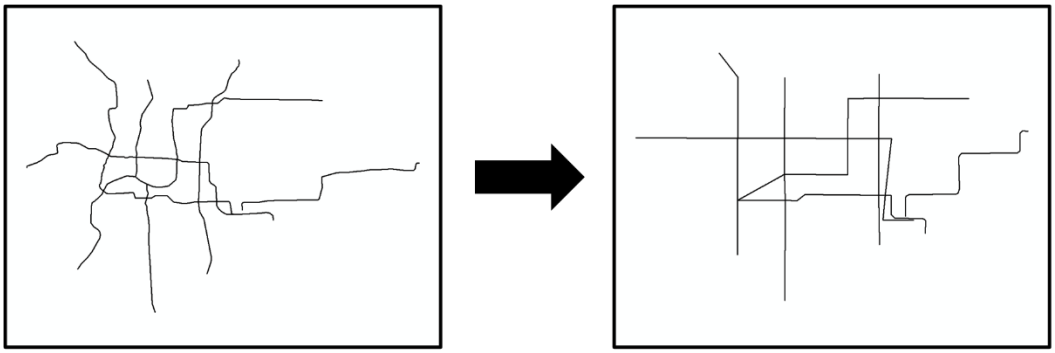
14. Score complexity change after schematization for Chongqing metro networks



Chongqing original metro network　　Chongqing schematic metro network

	1 (Very low)	2 (Low)	3 (Medium)	4 (High)	5 (Very high)
Complexity change	○	○	○	○	○

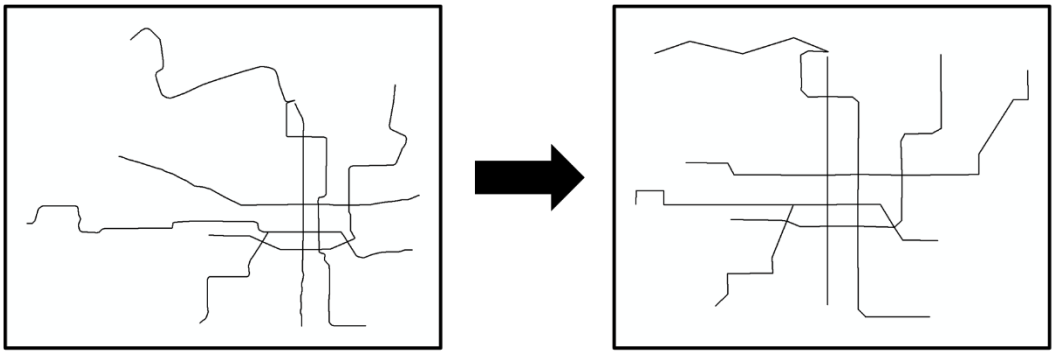
15. Score complexity change after schematization for Changsha metro networks



Changsha original metro network　　Changsha schematic metro network

	1 (Very low)	2 (Low)	3 (Medium)	4 (High)	5 (Very high)
Complexity change	○	○	○	○	○

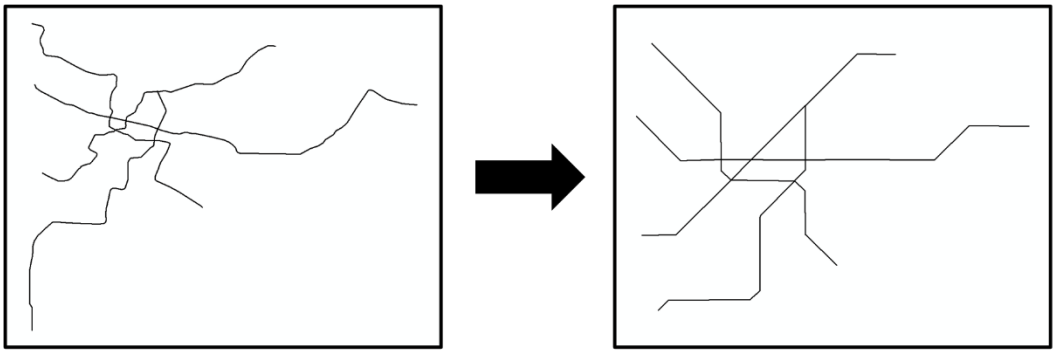
16. Score complexity change after schematization for Xi'an metro networks



Xi'an original metro network　　Xi'an schematic metro network

	1 (Very low)	2 (Low)	3 (Medium)	4 (High)	5 (Very high)
Complexity change	○	○	○	○	○

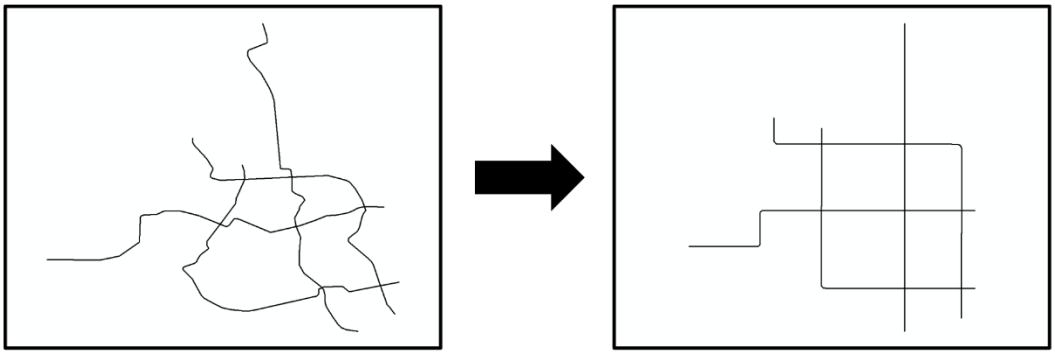
17. Score complexity change after schematization for Ningbo metro networks



Ningbo original metro network　　Ningbo schematic metro network

	1 (Very low)	2 (Low)	3 (Medium)	4 (High)	5 (Very high)
Complexity change	○	○	○	○	○

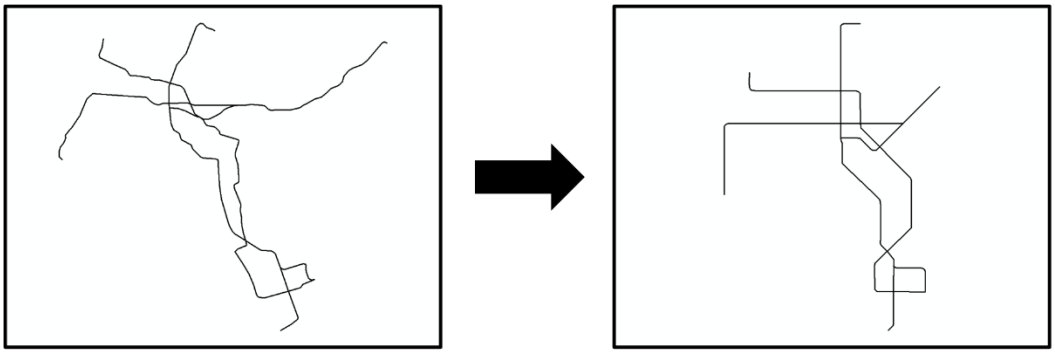
18. Score complexity change after schematization for Shenyang metro networks



Shenyang original metro network　　Shenyang schematic metro network

	1 (Very low)	2 (Low)	3 (Medium)	4 (High)	5 (Very high)
Complexity change	○	○	○	○	○

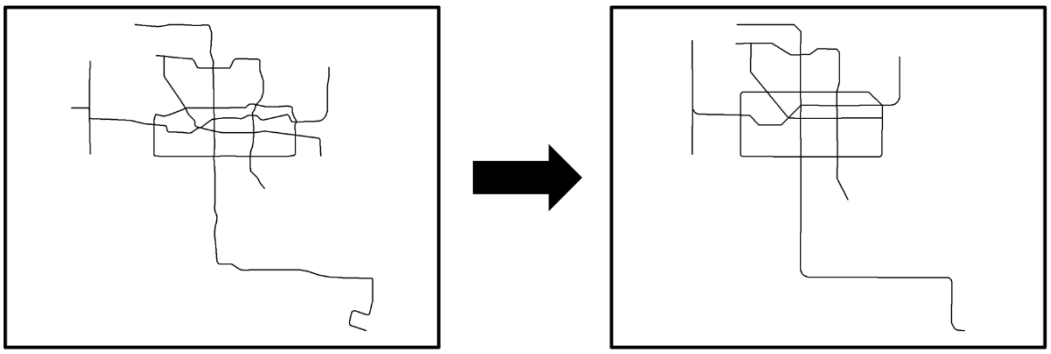
19. Score complexity change after schematization for Kunming metro networks



Kunming original metro network　　Kunming schematic metro network

	1 (Very low)	2 (Low)	3 (Medium)	4 (High)	5 (Very high)
Complexity change	○	○	○	○	○

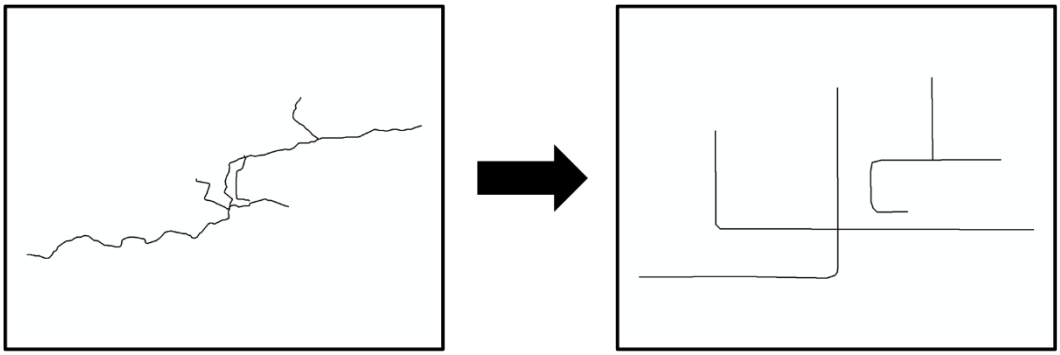
20. Score complexity change after schematization for Zhengzhou metro networks



Zhengzhou original metro network　　Zhengzhou schematic metro network

	1 (Very low)	2 (Low)	3 (Medium)	4 (High)	5 (Very high)
Complexity change	○	○	○	○	○

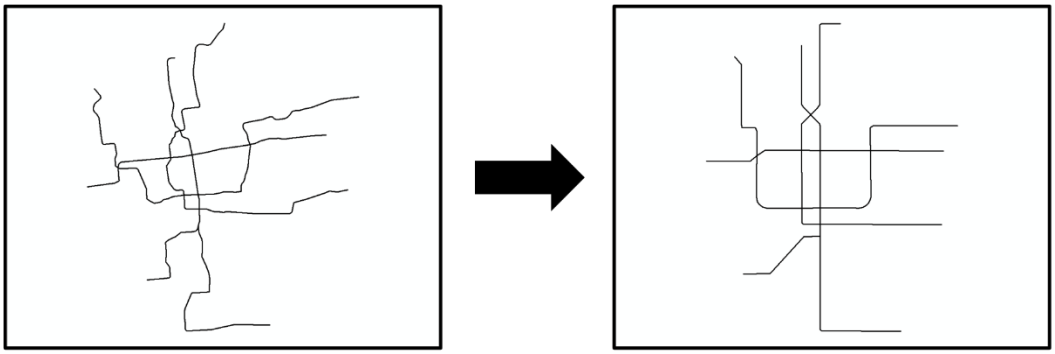
21. Score complexity change after schematization for Dalian metro networks



Dalian original metro network　　Dalian schematic metro network

	1 (Very low)	2 (Low)	3 (Medium)	4 (High)	5 (Very high)
Complexity change	○	○	○	○	○

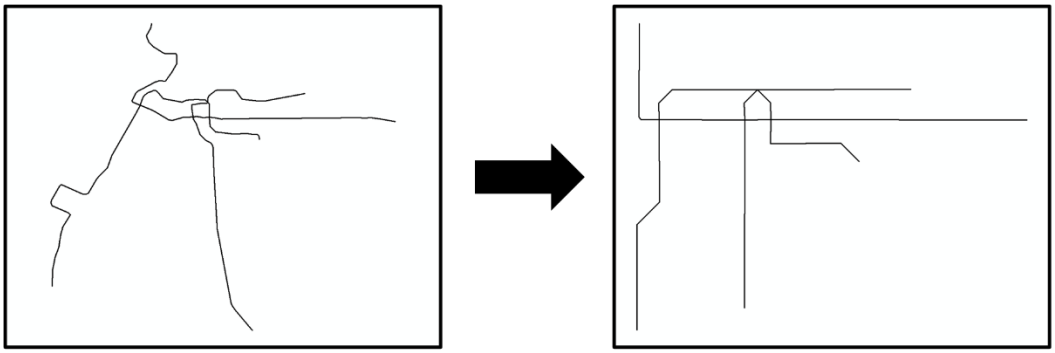
22. Score complexity change after schematization for Suzhou metro networks



Suzhou original metro network　　Suzhou schematic metro network

	1 (Very low)	2 (Low)	3 (Medium)	4 (High)	5 (Very high)
Complexity change	○	○	○	○	○

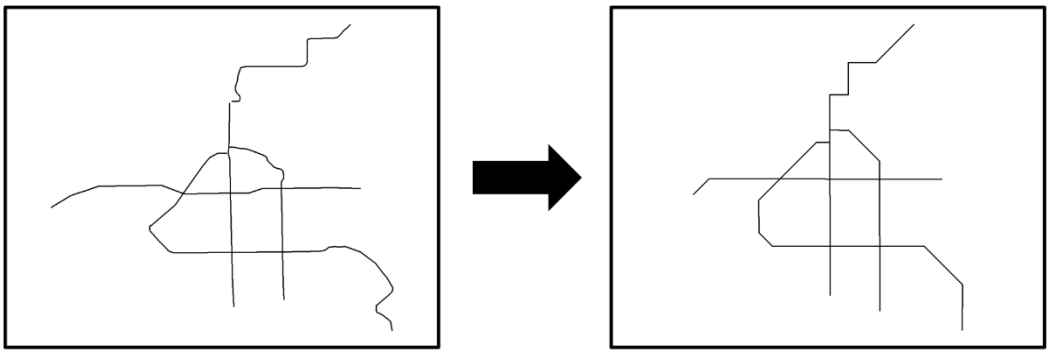
23. Score complexity change after schematization for Nanchang metro networks



Nanchang original metro network　　Nanchang schematic metro network

	1 (Very low)	2 (Low)	3 (Medium)	4 (High)	5 (Very high)
Complexity change	○	○	○	○	○

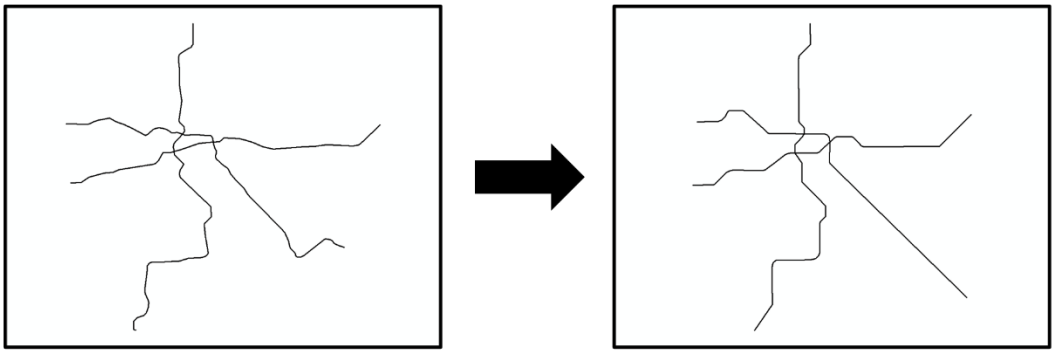
24. Score complexity change after schematization for Changchun metro networks



Changchun original metro network　　Changchun schematic metro network

	1 (Very low)	2 (Low)	3 (Medium)	4 (High)	5 (Very high)
Complexity change	○	○	○	○	○

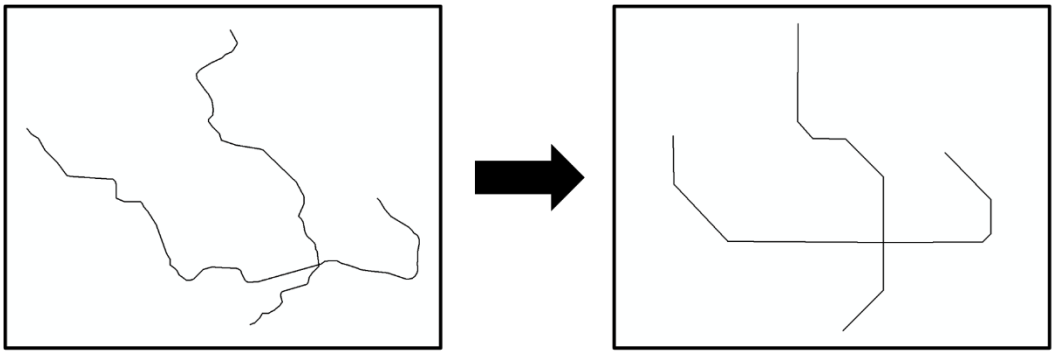
25. Score complexity change after schematization for Wuxi metro networks



Wuxi original metro network　　Wuxi schematic metro network

	1 (Very low)	2 (Low)	3 (Medium)	4 (High)	5 (Very high)
Complexity change	○	○	○	○	○

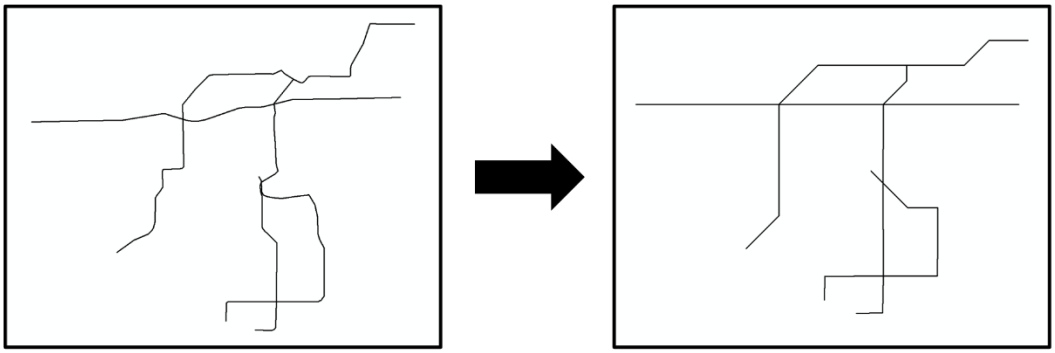
26. Score complexity change after schematization for Xiamen metro networks



Xiamen original metro network　　Xiamen schematic metro network

	1 (Very low)	2 (Low)	3 (Medium)	4 (High)	5 (Very high)
Complexity change	○	○	○	○	○

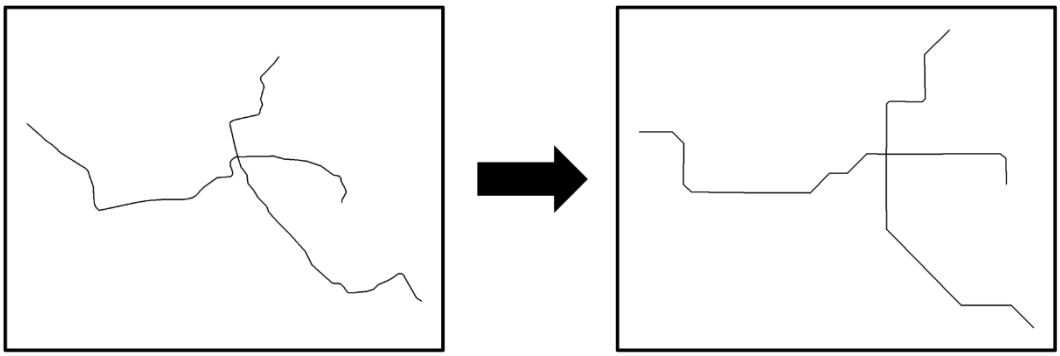
27. Score complexity change after schematization for Hefei metro networks



Hefei original metro network　　Hefei schematic metro network

	1 (Very low)	2 (Low)	3 (Medium)	4 (High)	5 (Very high)
Complexity change	○	○	○	○	○

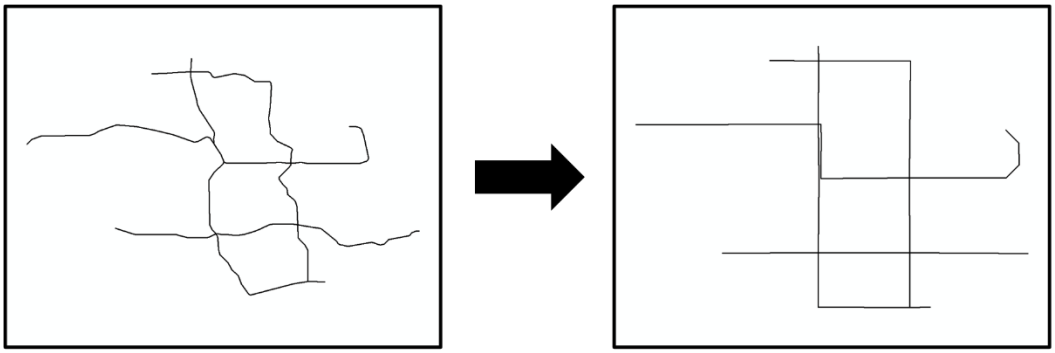
28. Score complexity change after schematization for Fuzhou metro networks



Fuzhou original metro network　　Fuzhou schematic metro network

	1 (Very low)	2 (Low)	3 (Medium)	4 (High)	5 (Very high)
Complexity change	○	○	○	○	○

29. Score complexity change after schematization for Nanning metro networks



Nanning original metro network　　Nanning schematic metro network

	1 (Very low)	2 (Low)	3 (Medium)	4 (High)	5 (Very high)
Complexity change	○	○	○	○	○