MCS-274 Decomposition Examples

Attributes: ID#, First name, Last name, Phone, Address, City, State, ZIP
Abbreviations: IFLPACSZ
Functional Dependencies: I→FLACSZ, ACS→Z, AZ→CS:

#	Decomposition	BCNF?	Lossless?	Dependency preserving?	Notes
1	IFLPACSZ	☐	☑	☑	all in one big table
2	IFLACSZ, IP	☐	☑	☑	partially decomposed
3	IFLACS, IP, ACSZ	☑	☑	☑	nice decomposition
4	IFLAZ, IP, ACSZ	☑	☑	☑	another nice one
5	IF, IL, IP, IA, IC, IS, IZ	☑	☑	☐	BCNF, lossless, but not dependency preserving
6	IF, LP, AC, SZ	☑	☐	☐	horribly lossy (and not dependency preserving)
7	IF, IL, IP, IACS, ACSZ	☑	☑	☑	unnecessarily many tables
8	IFL, IP, ACSZ	☑	☐	☐	3, but lossy (and not dependency preserving
9	IFLACS, P, ACSZ	☑	☐	☑	BCNF & preserving, but it's lossy

Suppose the Post Office eliminates a few weird cases and we have Z→S. How does the example change?