## Interactive / complex / 9

IC 1	query	Interactive / complex / 9
IC 2	title	Recent messages by friends or friends of friends
IC 3 IC 4 IC 5 IC 6 IC 7 IC 8 IC 9 IC 10	pattern	person: Person  id = \$personId  knows*12  id firstName lastName  hasCreator  message: Message  creationDate < \$maxDate  id content / imageFile creationDate
IC 12		Given a start Person, find the most recent Messages created by that Person's friends or friends of
IC 13	desc.	friends (excluding start Person). Only consider Messages created before the given maxDate (exclud-
IC 14		ing that day).
	params	1 personId ID 2 maxDate Date
	result	1 otherPerson.id ID R 2 otherPerson.firstName String R 3 otherPerson.lastName String R 4 message.id ID R message.content or 5 message.imageFile (for photos) 6 message.creationDate DateTime R
	sort	1 message.creationDate ↓ 2 message.id ↑
	limit	20
	CPs	1.1, 1.2, 2.2, 2.3, 3.2, 3.3, 8.5
	relevance	This query looks for paths of length two or three, starting from a given Person, moving to its friends and friends of friends, and ending at their created Messages. This is one of the most complex queries, as the list of choke points indicates. This query is expected to touch variable amounts of data with entities of different characteristics, and therefore, properly estimating cardinalities and selecting the proper operators will be crucial.