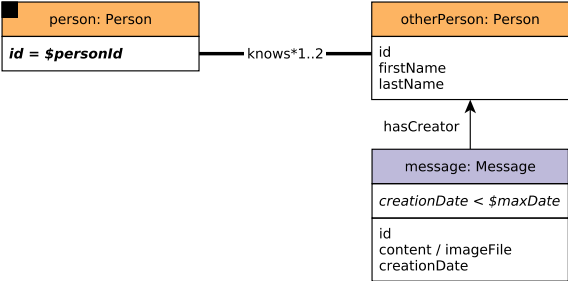


## Interactive / complex / 9

IC 1	query	Interactive / complex / 9			
IC 2	title	Recent messages by friends or friends of friends			
IC 3	pattern	 <pre> graph LR     person[person: Person] -- "knows*1..2" --&gt; otherPerson[otherPerson: Person]     otherPerson -- "hasCreator" --&gt; message[message: Message]     message -- "creationDate &lt; \$maxDate" --&gt; filter[ ]     filter -- "id" --&gt; message     message -- "content / imageFile" --&gt; output[ ]     message -- "creationDate" --&gt; output             </pre>			
IC 4					
IC 5					
IC 6					
IC 7					
IC 8					
IC 9					
IC 10					
IC 11					
IC 12	desc.	Given a start Person, find the most recent Messages created by that Person's friends or friends of friends (excluding start Person). Only consider Messages created before the given maxDate (excluding that day).			
IC 13	params	1	personId	ID	
IC 14		2	maxDate	Date	
result	1	otherPerson.id	ID	R	
	2	otherPerson.firstName	String	R	
	3	otherPerson.lastName	String	R	
	4	message.id	ID	R	
	5	message.content or message.imageFile (for photos)	Text	R	
	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.				