Known Feature Interaction	Decrypt, Forward (0)	
Possible new features	Addressbook, Autoresponder, Encrypt, Sign, Verify	
Jaccard Similarity	Decrypt-Autoresponder	Forward-Autoresponder
Predicted pair as Interaction	Autoresponder-Forward	Decrypt, Autoresponder
Is Prediction an Interaction?	✘	✓
Hamming Similarity	Decrypt- Autoresponder	Forward- Autoresponder
Predicted pair as Interaction	Autoresponder-Forward	Decrypt, Autoresponder
Is Prediction an Interaction?	✘	✓

Known Feature Interaction	Addressbook, Encrypt (1)	
Possible new features	Autoresponder, Decrypt, Forward, Sign, Verify	
	The most similar pairs	
Jaccard Similarity	Addressbook-Sign	Encrypt-Verify
Predicted pair as Interaction	Sign-Encrypt	Addressbook, Verify
Is Prediction an Interaction?	✘	✘
Hamming Similarity	Addressbook - Decrypt	Encrypt - Verify
Predicted pair as Interaction	Decrypt-Encrypt	Addressbook, Verify
Is Prediction an Interaction?	✓	✘

Known Feature Interaction	Sign, Verify (3)	
Possible new features	Addressbook, Autoresponder, Encrypt, Decrypt, Forward	
	The most similar pairs	
Jaccard Similarity	Sign-Encrypt	Verify-Encrypt
Predicted pair as Interaction	Encrypt-Verify	Sign-Encrypt
Is Prediction an Interaction?	✓	✘
Hamming Similarity	Sign- Encrypt	Verify-Decrypt
Predicted pair as Interaction	Encrypt-Verify	Sign- Decrypt
Is Prediction an Interaction?	✓	✘

Known Feature Interaction	Sign, Forward (4)	
Possible new features	Addressbook, Autoresponder, Encrypt, Decrypt, Verify	
	The most similar pairs	
Jaccard Similarity	Sign-Encrypt	Forward-Decrypt
Predicted pair as Interaction	Encrypt-Forward	Sign-Decrypt
Is Prediction an Interaction?	✓	✗
Hamming Similarity	Sign- Decrypt	Forward-Decrypt
Predicted pair as Interaction	Decrypt-Forward	Sign-Decrypt
Is Prediction an Interaction?	✓	✗

Known Feature Interaction	Encrypt, Decrypt (6)	
Possible new features	Addressbook, Autoresponder, Forward, Sign, Verify	
	The most similar pairs	
Jaccard Similarity	Encrypt-Verify	Decrypt- Autoresponder
Predicted pair as Interaction	Verify-Decrypt	Encrypt-Autoresponder
Is Prediction an Interaction?	✗	✓
Hamming Similarity	Encrypt- Verify	Decrypt-Autoresponder(forward)
Predicted pair as Interaction	Verify-Decrypt	Encrypt-Autoresponder(forward)
Is Prediction an Interaction?	✗	✓(✓)

Known Feature Interaction	Encrypt, Verify (7)	
Possible new features	Addressbook, Autoresponder, Decrypt, Forward, Sign	
	The most similar pairs	
Jaccard Similarity	Encrypt-Sign	Verify-Decrypt
Predicted pair as Interaction	Sign-Verify	Decrypt, Encrypt
Is Prediction an Interaction?	✓	✓
Hamming Similarity	Encrypt-Decrypt	Verify-Decrypt
Predicted pair as Interaction	Decrypt-Verify	Encrypt-Decrypt
Is Prediction an Interaction?	✗	✓

Known Feature Interaction	Encrypt, Autoresponder (8)	
Possible new features	Addressbook, Decrypt, Forward, Sign, Verify	
	The most similar pairs	
Jaccard Similarity	Encrypt-Verify	Autoresponder-Decrypt
Predicted pair as Interaction	Verify-Autoresponder	Encrypt-Decrypt
Is Prediction an Interaction?	✗	✓
Hamming Similarity	Encrypt- Decrypt(+Verify)	Autoresponder-Decrypt
Predicted pair as Interaction	Decrypt(Verify) - Autoresponder	Encrypt-Decrypt
Is Prediction an Interaction?	✓(✗)	✓

Known Feature Interaction	Encrypt, Forward (9)	
Possible new features	Addressbook, Autoresponder, Decrypt, Sign, Verify	
	The most similar pairs	
Jaccard Similarity	Encrypt-Verify (Sign)	Forward-Decrypt
Predicted pair as Interaction	Verify (Sign)-Forward	Encrypt-Decrypt
Is Prediction an Interaction?	✓✓	✓
Hamming Similarity	Encrypt- Decrypt (Verify, Sign)	Forward- Decrypt
Predicted pair as Interaction	Decrypt (Verify, Sign) - Forward	Encrypt-Decrypt
Is Prediction an Interaction?	✓(✓)	✓

Known Feature Interaction	Decrypt, Autoresponder (11)	
Possible new features	Addressbook, Encrypt, Forward, Sign, Verify	
	The most similar pairs	
Jaccard Similarity	Decrypt- Forward	Autoresponder-Forward
Predicted pair as Interaction	Forward -Autoresponder	Decrypt-Forward
Is Prediction an Interaction?	✓	✓
Hamming Similarity	Decrypt-Forward	Autoresponder- Forward
Predicted pair as Interaction	Forward -Autoresponder	Decrypt-Forward
Is Prediction an Interaction?	✓	✓

Known Feature Interaction	Autoresponder- Forward (13)	
Possible new features	Addressbook, Encrypt, Decrypt, Sign, Verify	
	The most similar pairs	
Jaccard Similarity	Autoresponder-Decrypt	Forward- Decrypt
Predicted pair as Interaction	Decrypt-Forward	Autoresponder-Decrypt
Is Prediction an Interaction?	✓	✓
Hamming Similarity	Autoresponder- Decrypt	Forward-Decrypt
Predicted pair as Interaction	Decrypt-Forward	Autoresponder-Decrypt
Is Prediction an Interaction?	✓	✓

Known Feature Interaction	Verify- Forward (27)	
Possible new features	Addressbook, Autoresponder, Encrypt, Decrypt, Sign	

	The most similar pairs	
Jaccard Similarity	Verify-Encrypt	Forward- Decrypt
Predicted pair as Interaction	Encrypt-Forward	Verify-Decrypt
Is Prediction an Interaction?	✓	✗
Hamming Similarity	Verify-Encrypt	Forward-Decrypt
Predicted pair as Interaction	Encrypt-Forward	Verify-Decrypt
Is Prediction an Interaction?	✓	✗

Accuracy (Jaccard)= (14)/(22)= 63%

Accuracy (Hamming)=(15)/(22)=68%

Accuracy (Combined)= (16)/(22)=72%

Known Feature Interaction	Encrypt, Autoresponder (8)		
Possible new features	Addressbook, Decrypt, Forward, Sign, Verify		
	Encrypt		*Autoresponder*
Similar features by Jaccard	Verify		Decrypt
Jaccard Detection	Verify-Autoresponder		Encrypt-Decrypt
True Detection	✗		✓
Similar feature by Hamming	Decrypt Verify		Decrypt
Hamming Detection	(Decrypt – Autoresponder)	(Verify– Autoresponder)	Encrypt-Decrypt
True Detection	✓	✗	✓

Known Feature Interaction	Encrypt, Verify (7)	
Possible new features	Addressbook, Autoresponder, Decrypt, Forward, Sign	
	Encrypt	*Verify*
Similar features by Jaccard	Encrypt-Sign	Verify-Decrypt
Jaccard Detection	Sign-Verify	Decrypt, Encrypt
True Detection	✓	✓
Similar feature by Hamming	Encrypt-Decrypt	Verify-Decrypt
Hamming Detection	Decrypt-Verify	Encrypt-Decrypt
True Detection	✗	✓

Encrypt, Autoresponder(ID = 8)	Possible New Features F= {Addressbook, Decrypt, Forward, Sign, Verify}			
	Jaccard Distance		**Hamming Distance**	
Highest Sim (Encrypt, F)	Verify		Decrypt	
Highest Sim (Autoresponder, F)	Decrypt		Decrypt	
Feature Interaction Prediction	Verify-Autoresponder	Encrypt-Decrypt	Decrypt-Autoresponder	Encrypt-Decrypt
Actual Result	**False ✗**	**True✓**	**True✓**	**True✓**

Hamming

	addressbook	autoresponder	decrypt	encrypt	forward	keys	sign	verify
base	0.456	0.519	0.557	0.532	0.519	0.392	0.481	0.532
addressbook		0.810	0.848	0.797	0.810	0.709	0.772	0.797
autoresponder			0.937	0.835	0.899	0.772	0.810	0.886
decrypt				0.873	0.937	0.835	0.873	0.924
encrypt					0.835	0.759	0.823	0.873
forward						0.772	0.810	0.886
keys							0.734	0.785
sign								0.823

(Axis Title; values 0.000–1.000)

Jaccard

Axis Title

	addressbook	autoresponder	decrypt	encrypt	forward	keys	sign	verify
base	0.023	0.026	0.028	0.075	0.026	0.000	0.047	0.051
addressbook		0.000	0.000	0.059	0.000	0.000	0.053	0.000
autoresponder			0.167	0.000	0.111	0.000	0.000	0.100
decrypt				0.000	0.167	0.071	0.091	0.143
encrypt					0.000	0.050	0.125	0.167
forward						0.000	0.000	0.100
keys							0.045	0.056
sign								0.067