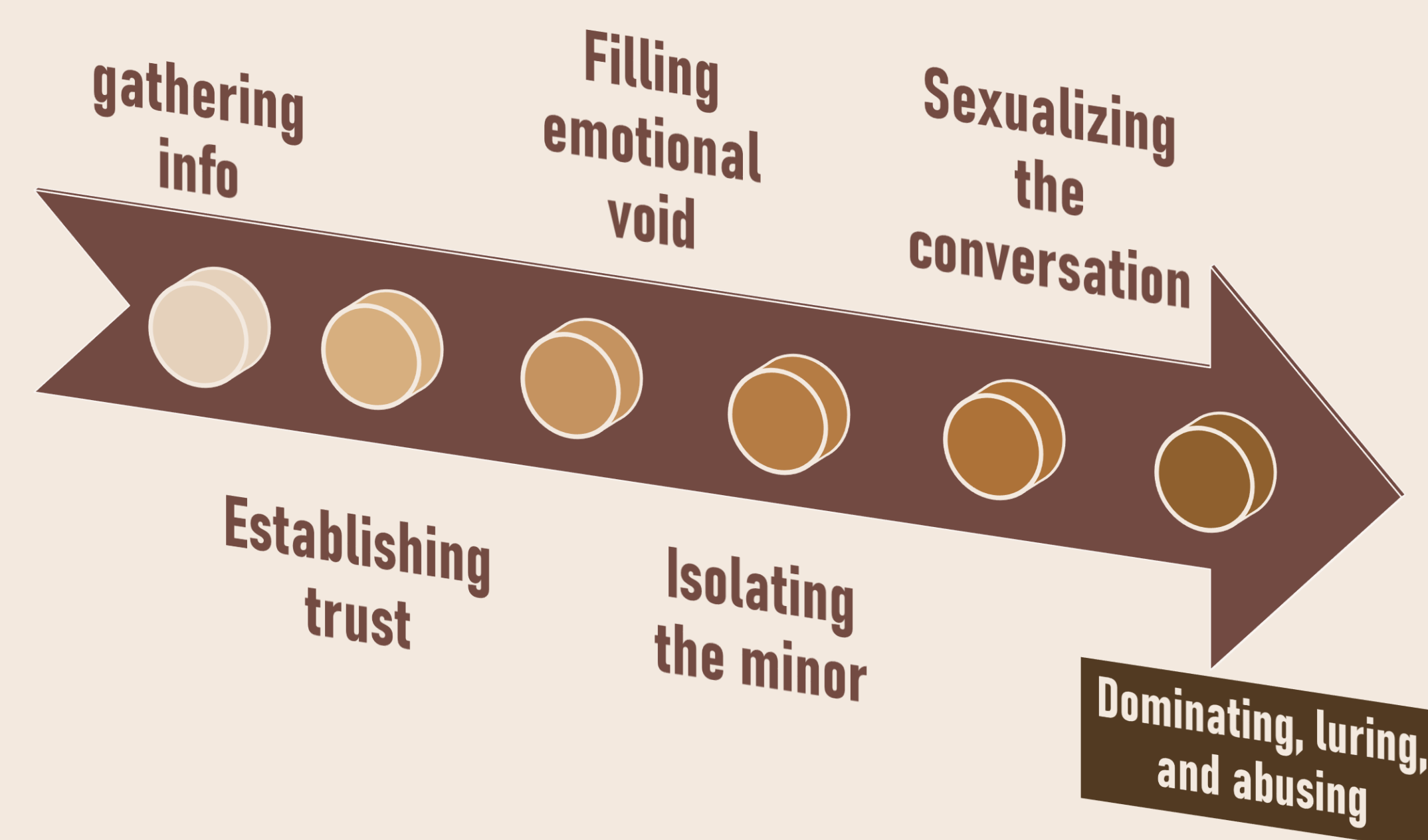


# Osprey: Online Grooming Conversation Detection

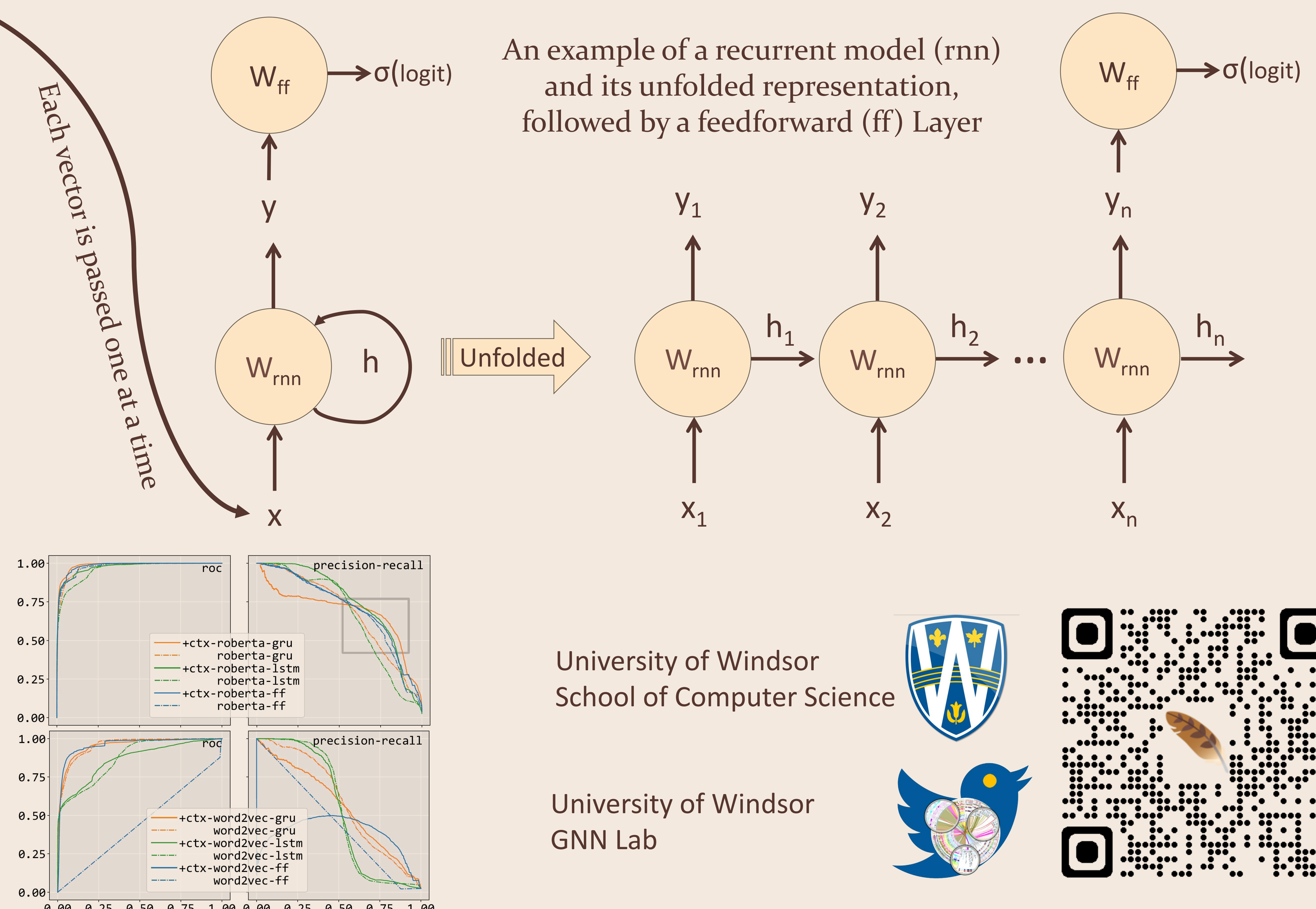
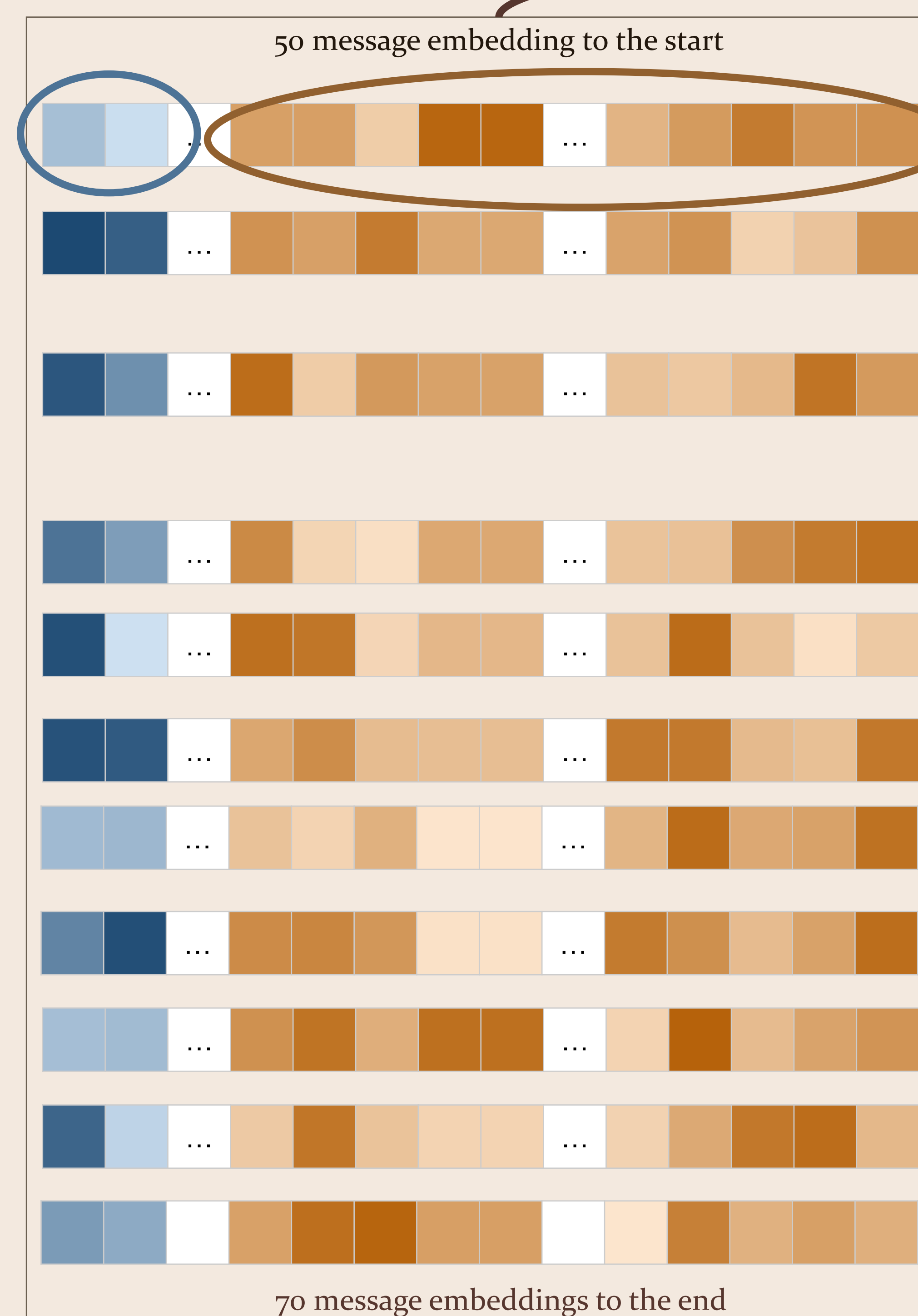
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The issue of Grooming has been around for decades, and with the emergence of online chat rooms, it took the form of Online Grooming. In our approach, this matter is not just a simple document of textual data but a process where an exchange of information takes place. Although it is not a rigid process, previous literature has shown that Online Grooming has several stages that the predators usually follow to abuse minors:



	aucroc			$f_2$			$f_{0.5}$		
	-ctx	+ctx	$\Delta$	-ctx	+ctx	$\Delta$	-ctx	+ctx	$\Delta$
conversation as a sequence of message embeddings ( $c = [g_\phi(m_i)]_{i=1}^{ c }$ )									
bow-rnn	54.04±01.16	58.40±02.56	+04.36	10.65±00.92	12.38±02.22	+01.73	03.30±00.09	05.01±01.51	+01.71
word2vec-rnn	54.65±04.25	57.62±01.92	+02.97	10.98±01.71	11.73±00.37	+00.75	10.37±09.49	18.23±10.38	+07.87
word2vec <sup>†</sup> -rnn	57.97±01.46	65.13±06.27	+07.16	12.91±00.60	14.98±03.90	+02.06	11.59±10.55	11.30±08.82	-00.28
roberta-rnn	59.11±02.79	67.01±05.83	+07.90	11.69±00.41	12.87±01.89	+01.18	8.06±06.53	10.72±09.79	+02.66
roberta <sup>†</sup> -rnn	54.75±00.41	55.79±00.44	+01.04	10.80±00.30	11.22±00.22	+00.42	11.48±05.58	22.85±00.15	+11.37
bow-lstm	94.36±01.89	96.24±00.16	+01.88	62.44±03.36	60.69±04.75	-01.75	62.48±05.05	60.35±05.23	-02.13
word2vec-lstm	91.79±03.37	90.51±03.42	-01.28	53.38±00.96	54.13±02.65	+00.74	59.54±03.32	55.76±07.37	-03.77
word2vec <sup>†</sup> -lstm	90.96±00.59	93.02±01.52	+02.05	47.20±02.66	51.69±01.63	+04.50	34.23±06.31	45.91±09.76	+11.68
roberta-lstm	96.08±00.28	97.98±00.48	+01.90	64.07±04.28	70.74±01.89	+06.68	63.69±04.38	64.43±03.14	+00.74
roberta <sup>†</sup> -lstm	81.95±13.88	93.87±02.53	+11.91	39.23±19.27	49.22±02.42	+09.99	37.43±18.14	29.14±13.06	-08.29
bow-gru	96.69±00.54	97.09±00.74	+00.40	67.95±01.38	62.75±02.55	-05.21	48.84±02.42	67.20±03.90	+18.36
word2vec-gru	95.38±00.85	96.00±00.45	+00.62	55.63±02.13	54.66±02.17	-00.97	51.35±06.13	50.63±10.51	-00.72
word2vec <sup>†</sup> -gru	92.18±00.58	92.98±00.39	+00.80	48.49±01.49	47.91±01.49	-00.58	50.71±03.21	45.52±13.83	-05.19
roberta-gru	97.04±00.82	98.29±00.22	+01.25	67.30±00.97	74.00±01.25	+06.71	59.04±06.97	54.87±03.90	-04.17
roberta <sup>†</sup> -gru	95.53±01.18	97.09±00.39	+01.56	45.66±17.29	63.80±04.22	+18.15	23.16±12.93	38.89±07.76	+15.73



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