Electronic supporting information for "Modeling the stretching of wormlike chains in the presence of excluded volume"

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Figure S1 provides representative data showing that the fractional extension z becomes independent of contour length L for sufficiently long chains.

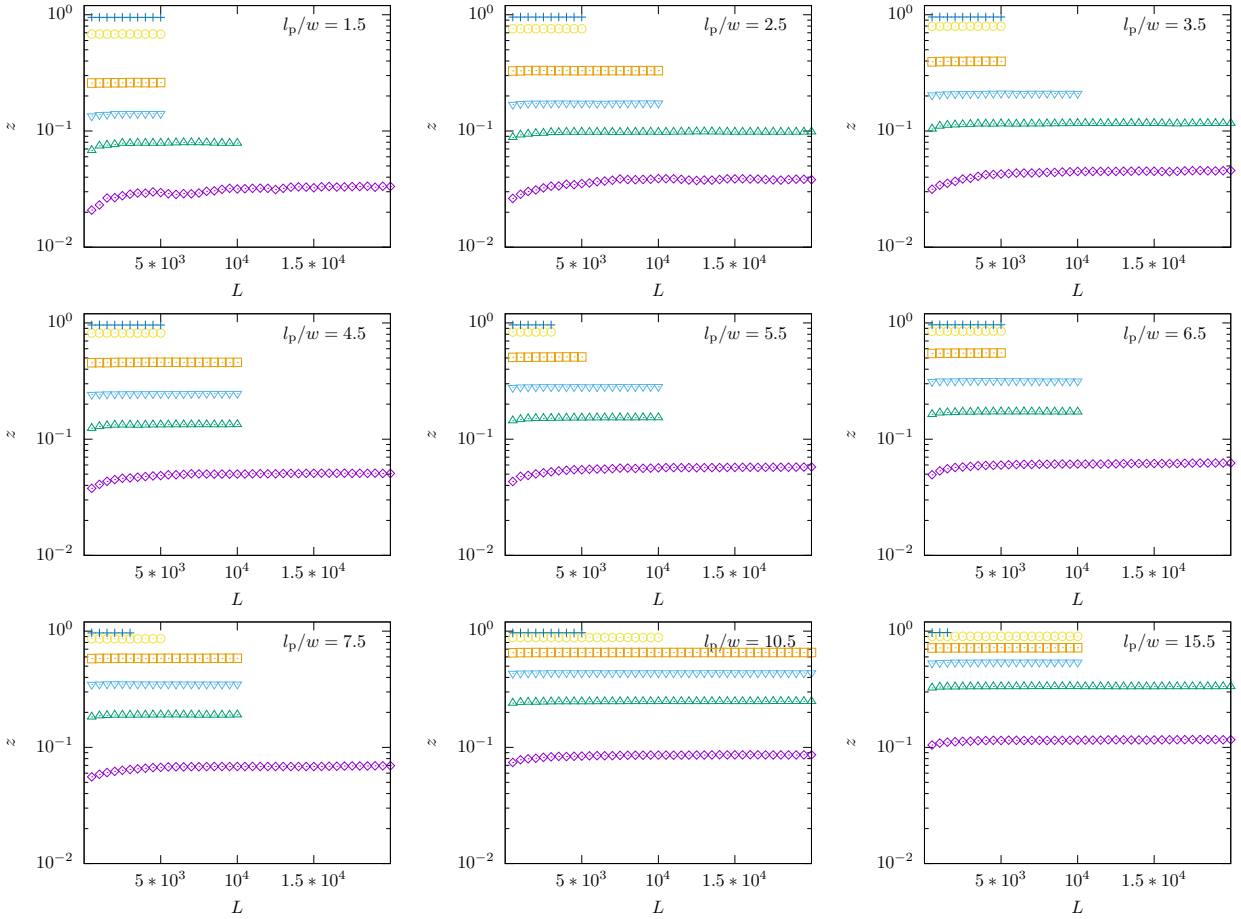

Figure S1: Fractional extension z as a function of contour length $L = (N_b - 1)w$ for N_b beads of size w for different values of the force Fw/l_p: 0.0105 (purple $\diamondsuit$), 0.0373 (green $\triangle$), 0.0833 (cyan $\triangledown$), 0.2152 (orange $\square$), 1.7100 (yellow $\circ$), 18.0000 (blue $+$). Each panel corresponds to a different value of l_p/w.

Tables S1 and S2 provide the number of beads N_b used for each data point in the paper.

Table S1: Number of beads used for the data in Figs. 1, 3, 4. The values in the first row are different l_p/w. The simulation data for the freely-jointed chain ($l_\mathrm{p}/w = 1.0$) are only used for Fig. 4.

Fw/l_p	1.0	1.5	2.5	3.5	4.5	5.5	6.5	7.5	10.5	15.5
0.0000	40001	40001	40001	40001	40001	40001	40001	40001	40001	40001
0.0105	40001	20001	20001	20001	40001	40001	20001	20001	40001	80001
0.0164	40001	20001	20001	20001	40001	80001	20001	20001	40001	40001
0.0227	40001	10001	20001	20001	20001	10001	20001	20001	40001	40001
0.0296	40001	10001	20001	20001	20001	10001	20001	20001	20001	40001
0.0373	20001	10001	20001	20001	10001	10001	10001	10001	20001	40001
0.0461	20001	10001	10001	20001	10001	10001	20001	10001	10001	40001
0.0563	20001	10001	10001	10001	10001	10001	10001	10001	20001	40001
0.0684	20001	10001	10001	10001	10001	5001	10001	10001	20001	40001
0.0833	20001	5001	10001	10001	10001	10001	10001	10001	20001	10001
0.1023	20001	5001	10001	5001	10001	10001	5001	10001	10001	20001
0.1275	10001	5001	5001	20001	10001	5001	5001	10001	10001	20001
0.1627	10001	10001	5001	5001	10001	5001	5001	10001	20001	20001
0.2152	10001	5001	10001	5001	10001	5001	5001	10001	20001	10001
0.3000	10001	5001	5001	5001	5001	3201	5001	5001	20001	5001
0.453	10001	5001	5001	5001	5001	5001	5001	5001	10001	5001
0.7807	10001	5001	5001	5001	5001	5001	5001	5001	10001	10001
1.7100	5001	5001	5001	5001	5001	3201	5001	5001	10001	10001
6.7133	3201	5001	5001	5001	5001	3201	5001	3201	10001	10001
18.000	5001	5001	5001	5001	5001	3201	5001	3201	5001	1601

Table S2: Number of beads used for Fig. 2

$l_\mathrm{p}/w = 1.5$		$l_\mathrm{p}/w = 2.5$		$l_\mathrm{p}/w = 3.5$		$l_\mathrm{p}/w = 4.5$		$l_\mathrm{p}/w = 5.5$	
Fw/l_p	L	Fw/l_p	L	Fw/l_p	L	Fw/l_p	L	Fw/l_p	L
0.0189	40001	0.0144	20001	0.0121	40001	0.0106	40001	0.0095	40001
0.0529	20001	0.0400	10001	0.0610	20001	0.0291	40001	0.0262	40001
0.0980	20001	0.0735	10001	0.0794	20001	0.0532	20001	0.0477	10001
0.1536	20001	0.1143	10001	0.0944	10001	0.0821	20001	0.0735	10001
0.2202	10001	0.1625	10001	0.1337	20001	0.1158	5001	0.1034	10001
0.2989	10001	0.2187	10001	0.1791	5001	0.1547	10001	0.1378	10001
0.3920	10001	0.2842	5001	0.2315	5001	0.1992	5001	0.1770	5001
0.5027	5001	0.3609	5001	0.2922	5001	0.2504	5001	0.2218	5001
0.6361	5001	0.4518	5001	0.3634	5001	0.3101	5001	0.2737	5001
0.8002	5001	0.5616	5001	0.4485	5001	0.3806	5001	0.3347	5001
1.0078	5001	0.6980	5001	0.5528	3201	0.4664	5001	0.4083	5001
1.2803	5001	0.8739	5001	0.6856	3201	0.5745	5001	0.5002	5001
1.6557	5001	1.1118	5001	0.8630	3201	0.7174	5001	0.6208	5001
2.2059	5001	1.4552	5001	1.1158	3201	0.9193	5001	0.7897	5001
3.0819	5001	1.9944	5001	1.5089	3201	1.2303	5001	1.0481	5001
4.6453	5001	2.9464	5001	2.1971	5001	1.7710	5001	1.4945	5001
7.9517	5001	4.9446	5001	3.6327	5001	2.8932	3201	2.4167	5001
17.2787	5001	10.5555	5001	7.6490	5001	6.0228	3201	4.9815	5001
67.3484	5001	40.6124	5001	29.1270	5001	22.7337	3201	18.6584	5001

$l_\mathrm{p}/w = 6.5$		$l_\mathrm{p}/w = 7.5$		$l_\mathrm{p}/w = 10.5$		$l_\mathrm{p}/w = 15.5$	
Fw/l_p	L	Fw/l_p	L	Fw/l_p	L	Fw/l_p	L
0.0087	40001	0.0081	40001	0.0068	40001	0.0056	10001
0.0240	20001	0.0222	20001	0.0186	40001	0.0152	10001
0.0436	20001	0.0404	20001	0.0337	20001	0.0275	10001
0.0670	20001	0.0620	10001	0.0517	40001	0.0420	5001
0.0942	20001	0.0870	10001	0.0723	20001	0.0586	5001
0.1253	10001	0.1135	5001	0.0957	10001	0.0772	10001
0.1606	10001	0.1478	5001	0.1220	10001	0.0981	5001
0.2008	10001	0.1845	5001	0.1517	10001	0.1214	5001
0.2471	10001	0.2265	5001	0.1853	10001	0.1477	5001
0.3012	10001	0.2754	5001	0.2241	5001	0.1775	5001
0.3660	5001	0.3338	3201	0.2697	5001	0.2121	5001
0.4466	5001	0.4057	3201	0.3252	5001	0.2536	5001
0.5514	5001	0.4989	3201	0.3960	5001	0.3056	5001
0.6973	5001	0.6276	3201	0.4924	5001	0.3751	5001
0.9189	3201	0.8220	3201	0.6359	3201	0.4765	3201
1.2997	3201	1.1545	3201	0.8780	3201	0.6450	3201
2.0832	3201	1.8361	3201	1.3697	3201	0.9826	3201
4.2560	3201	3.7224	3201	2.7220	3201	1.9033	3201
15.8327	3201	13.7577	3201	9.8951	3201	6.7673	5001

Figure S2 is the equivalent of Fig. 1 in the main text for all values of l_p/w and Fig. S3 is the equivalent of Fig. 2 in the main text for all values of l_p/w.

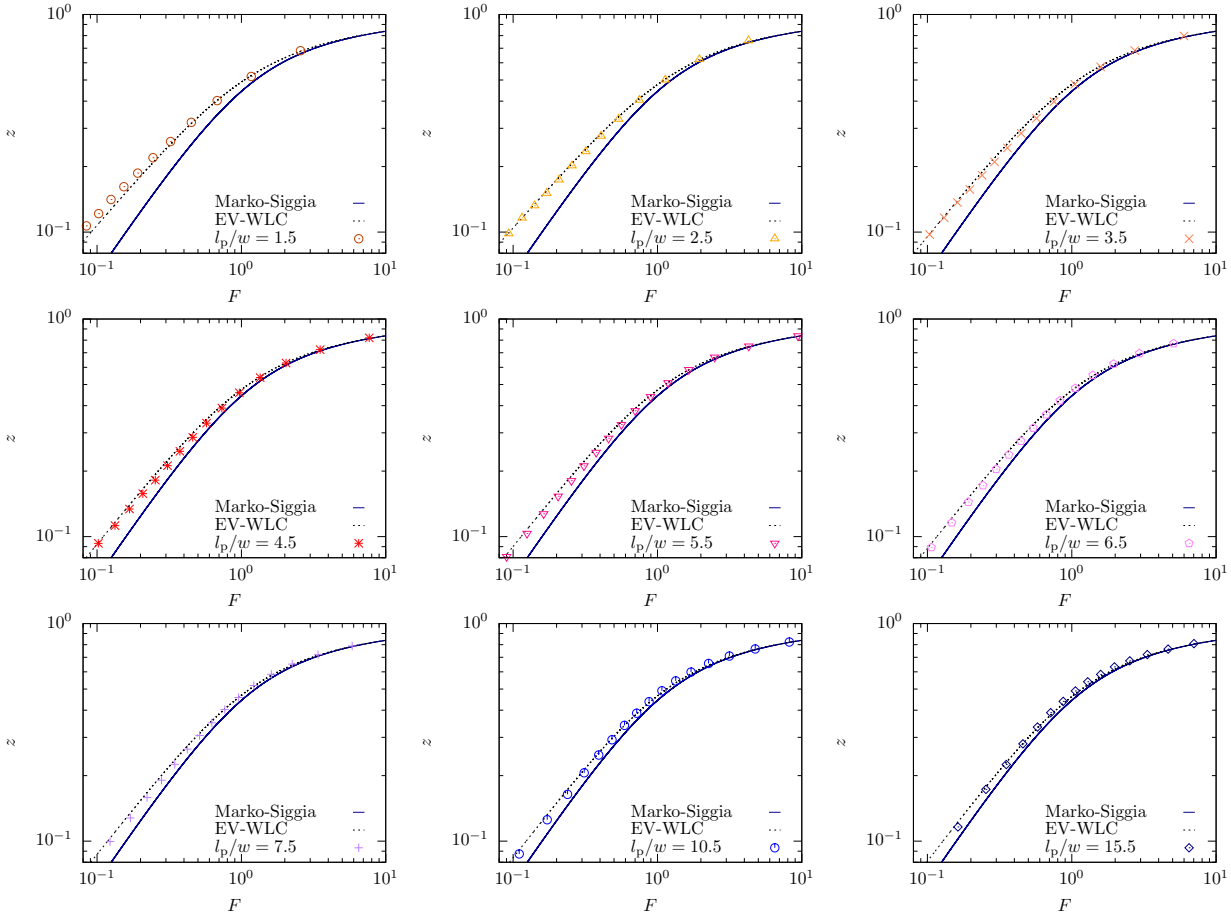

Figure S2: Figure 1 of the main text for all values of l_p/w.

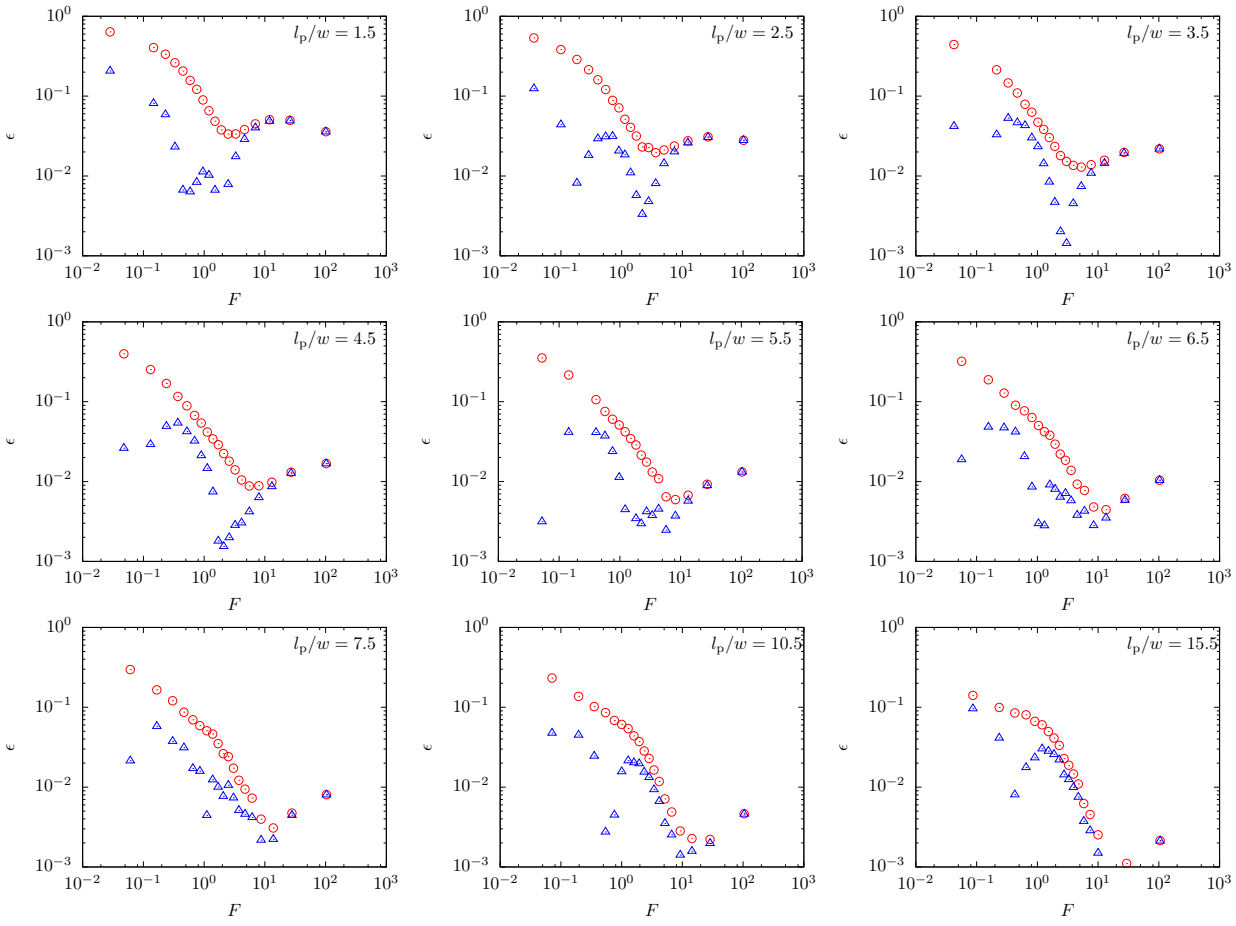

Figure S3: Figure 2 of the main text for all values of l_p/w for the Marko-Siggia interpolation formula (red $\circ$) and the EV-WLC interpolation formula (blue $\triangle$). Each panel corresponds to a different value of l_p/w.