

KiW 43 Abstract ($\omega\epsilon\beta/\text{kiw}$). Whether or not you like the formulas on this page, they describe the strongest truly computable knot invariant we know.

Observations. • Separates the Rolfsen table; does better than

Khovanov plus HOMFLY-PT on knots with up to 12 crossings (not tested beyond). • The degrees are bounded by the genus!

• ρ_1 vanishes for amphichiral knots. • Has a chance of detecting non-ribbonness ($\omega\epsilon\beta/\text{akt}$)!

knot diag	n'_k $(\rho'_1)^+$	Alexander's ω^+	genus / ribbon unknotting # / amphi?	knot diag	n'_k $(\rho'_1)^+$	Alexander's ω^+	genus / ribbon unknotting # / amphi?	knot diag	n'_k $(\rho'_1)^+$	Alexander's ω^+	genus / ribbon unknotting # / amphi?
	0_1^a 0	1	$0 / \checkmark$ $0 / \checkmark$		3_1^a T	$T-1$	$1 / \times$ $1 / \times$		4_1^a 0	$3-T$	$1 / \times$ $1 / \checkmark$
		$(\rho'_2)^+$				$(\rho'_2)^+$				$(\rho'_2)^+$	
	5_1^a $2T^3+3T$	T^2-T+1	$2 / \times$ $2 / \times$		5_2^a $5T-4$	$2T-3$	$1 / \times$ $1 / \times$		6_1^a $T-4$	$5-2T$	$1 / \checkmark$ $1 / \times$
	$5T^7-20T^6+55T^5-120T^4+217T^3-338T^2+450T-510$	0			$-10T^4+120T^3-487T^2+1054T-1362$	$3T^3-12T^2+26T-38$			$14T^4-16T^3-293T^2+1098T-1598$	$T^4-3T^3-15T^2+74T-110$	
	6_2^a T^3-4T^2+4T-4	$-T^2+3T-3$	$2 / \times$ $1 / \times$		6_3^a 0	T^2-3T+5	$2 / \times$ $1 / \checkmark$		7_1^a $3T^5+5T^3+6T$	T^3-T^2+T-1	$3 / \times$ $3 / \times$
	$37T^8-21T^7+49T^6+15T^5-4337T^4+15437T^3-3431T^2+5482T-6410$				$4T^8-33T^7+121T^6-203T^5-111T^4+1499T^3-4210T^2+7186T-8510$				$7T^{11}-28T^{10}+77T^9-168T^8+322T^7-560T^6+891T^5-1310T^4+1777T^3-2238T^2+2604T-2772$		
	7_2^a $14T-16$	$3T-5$	$1 / \times$ $1 / \times$		7_3^a $-9T^3+8T^2-16T+12$	$2T^2-3T+3$	$2 / \times$ $2 / \times$		7_4^a $32-24T$	$4T-7$	$1 / \times$ $2 / \times$
	$-129T^4+1177T^3-4421T^2+9226T-11718$				$-18T^8+208T^7-917T^6+2666T^5-6049T^4+11283T^3-17671T^2+23356T-25736$				$-352T^4+3616T^3-14378T^2+30700T-39188$		
	7_5^a $9T^3-16T^2+29T-28$	$2T^2-4T+5$	$2 / \times$ $2 / \times$		7_6^a $T^3-8T^2+19T-20$	$-T^2+5T-7$	$2 / \times$ $1 / \times$		7_7^a $8-3T$	T^2-5T+9	$2 / \times$ $1 / \times$
	$-18T^8+2647T^7-1548T^6+5680T^5-15107T^4+31152T^3-51476T^2+69252T-76414$				$3T^8-35T^7+128T^6+105T^5-2610T^4+11225T^3-28031T^2+47186T-55946$				$4T^8-55T^7+310T^6-805T^5+86T^4+6349T^3-22686T^2+43610T-53622$		
	8_1^a $5T-16$	$7-3T$	$1 / \times$ $1 / \times$		8_2^a $2T^5-8T^4+10T^3-12T^2+13T-12$	$-T^3+3T^2-3T+3$	$3 / \times$ $2 / \times$		8_3^a 0	$9-4T$	$1 / \times$ $2 / \checkmark$
	$42T^4+215T^3-2542T^2+7562T-10542$				$5T^{12}-39T^{11}+119T^{10}-139T^9-249T^8+1660T^7-4959T^6+11131T^5-20813T^4+33595T^3-47521T^2+58988T-63556$				$224T^4-224T^3-3910T^2+14100T-20364$		
	8_4^a $3T^3-8T^2+6T-4$	$-2T^2+5T-5$	$2 / \times$ $2 / \times$		8_5^a $-2T^5+8T^4-13T^3+20T^2-22T+24$	$-T^3+3T^2-4T+5$	$3 / \times$ $2 / \times$		8_6^a $5T^3-20T^2+28T-32$	$-2T^2+6T-7$	$2 / \times$ $2 / \times$
	$54T^8-3447T^7+8657T^6-6507T^5-2723T^4+12243T^3-28461T^2+45792T-53540$				$5T^{12}-39T^{11}+128T^{10}-182T^9-274T^8+2476T^7-8642T^6+21517T^5-42924T^4+71719T^3-102448T^2+126480T-135628$				$38T^8-2167T^7+112T^6+2880T^5-14787T^4+42444T^3-85415T^2+128406T-146916$		
	8_7^a $-T^5+4T^4-10T^3+12T^2-13T+12$	T^3-3T^2+5T-5	$3 / \times$ $1 / \times$		8_8^a $-T^3+4T^2-12T+16$	$2T^2-6T+9$	$2 / \checkmark$ $2 / \times$		8_9^a 0	$-T^3+3T^2-5T+7$	$3 / \checkmark$ $1 / \checkmark$
	$8T^{12}-75T^{11}+343T^{10}-979T^9+1821T^8-1782T^7-1623T^6+12083T^5-33001T^4+64599T^3-101194T^2+131404T-143216$				$62T^8-504T^7+1736T^6-2408T^5-3717T^4+26492T^3-68493T^2+113418T-133180$				$9T^{12}-87T^{11}+417T^{10}-1305T^9+2858T^8-4134T^7+2114T^6+8285T^5-31925T^4+69235T^3-112773T^2+148508T-162396$		
	8_{10}^a $-T^5+4T^4-11T^3+16T^2-21T+20$	T^3-3T^2+5T-7	$3 / \times$ $2 / \times$		8_{11}^a $5T^3-24T^2+39T-44$	$-2T^2+7T-9$	$2 / \times$ $1 / \times$		8_{12}^a 0	$T^2-7T+13$	$2 / \times$ $2 / \checkmark$
	$8T^{12}-75T^{11}+362T^{10}-1122T^9+2306T^8-2540T^7-2198T^6+18817T^5-54380T^4+110103T^3-175694T^2+230080T-251346$				$38T^8-2647T^7+301T^6+3514T^5-21716T^4+68785T^3-146898T^2+227828T-263172$				$47T^8-77T^7+583T^6-1991T^5+987T^4+17311T^3-71802T^2+147914T-185846$		
	8_{13}^a $-T^3+4T^2-14T+20$	$2T^2-7T+11$	$2 / \times$ $1 / \times$		8_{14}^a $5T^3-28T^2+57T-68$	$-2T^2+8T-11$	$2 / \times$ $1 / \times$		8_{15}^a $21T^3-64T^2+120T-140$	$3T^2-8T+11$	$2 / \times$ $2 / \times$
	$62T^8-592T^7+2351T^6-3918T^5-4235T^4+40079T^3-111533T^2+191500T-227432$				$38T^8-312T^7+444T^6+5096T^5-34777T^4+116368T^3-255750T^2+401632T-465478$				$-123T^8+2128T^7-15241T^6+66120T^5-199999T^4+451912T^3-792414T^2+1101720T-1228222$		
	8_{16}^a $T^5-6T^4+17T^3-28T^2+35T-36$	T^3-4T^2+8T-9	$3 / \times$ $2 / \times$		8_{17}^a 0	$-T^3+4T^2-8T+11$	$3 / \times$ $1 / \checkmark$		8_{18}^a 0	$-T^3+5T^2-10T+13$	$3 / \times$ $2 / \checkmark$
	$8T^{12}-100T^{11}+598T^{10}-2205T^9+5292T^8-7164T^7-2380T^6+43100T^5-137314T^4+291750T^3-478742T^2+636488T-698666$				$9T^{12}-116T^{11}+722T^{10}-2843T^9+7656T^8-13668T^7+11117T^6+21968T^5-113086T^4+273778T^3-475622T^2+649064T-717954$				$9T^{12}-145T^{11}+1075T^{10}-4842T^9+14504T^8-28560T^7+27957T^6+35195T^5-225204T^4+573797T^3-1021641T^2+1411484T-1567262$		
	8_{19}^a $-3T^5-4T^2-3T$	T^3-T^2+1	$3 / \times$ $3 / \times$		8_{20}^a $4T-4$	T^2-2T+3	$2 / \checkmark$ $1 / \times$		8_{21}^a $T^3-8T^2+16T-20$	$-T^2+4T-5$	$2 / \times$ $1 / \times$
	$7T^{15}-19T^{10}+6T^9+48T^8-52T^7-91T^6+211T^5+16T^4-431T^3+289T^2+536T-1060$				$4T^8-22T^7+66T^6-124T^5+52T^4+478T^3-1652T^2+3014T-3640$				$3T^8-28T^7+49T^6+352T^5-2489T^4+8164T^3-17530T^2+27092T-31226$		

knot diag	n'_k $(\rho'_1)^+$	Alexander's ω^+	genus / ribbon unknotting # / amphi?	knot diag	n'_k $(\rho'_1)^+$	Alexander's ω^+	genus / ribbon unknotting # / amphi?
	9_1^a $4T^7+7T^5+9T^3+10T$	$T^4-T^3+T^2-T+1$	$4 / \times$ $4 / \times$		9_2^a $30T-40$	$4T-7$	$1 / \times$ $1 / \times$
	$9T^{15}-36T^{14}+99T^{13}-216T^{12}+414T^{11}-720T^{10}+1170T^9-1800T^8+2630T^7-3662T^6+4853T^5-6142T^4+7423T^3-8572T^2+9420T-9780$	$(\rho'_2)^+$			$-728T^4+6088T^3-21946T^2+44788T-56420$	$(\rho'_2)^+$	
	9_3^a $-13T^5+12T^4-25T^3+20T^2-32T+24$	$2T^3-3T^2+3T-3$	$3 / \times$ $3 / \times$		9_4^a $23T^3-28T^2+46T-44$	$3T^2-5T+5$	$2 / \times$ $2 / \times$
	$-26T^{12}+296T^{11}-1311T^{10}+3838T^9-8867T^8+17613T^7-31407T^6+51061T^5-76085T^4+104297T^3-131779T^2+152840T-160976$				$-219T^8+1999T^7-8389T^6+23799T^5-52835T^4+96723T^3-149121T^2+194698T-213338$		

Video and more: <http://www.math.toronto.edu/~drorbn/Talks/CRM-1907>,
<http://www.math.toronto.edu/~drorbn/Talks/UCLA-191101>.