standardized version, where $\Psi(r)$ denotes the diagamma function and $\Psi'(r)$ denotes the trigamma function. normal components (k), their weights (w), means (m) and variances (σ^2). Means and variances are shown in their between the two distributions is below 5x10⁻⁴. The parameters in the normal mixture distribution include the number of distribution. The estimated parameters in the normal mixture distribution ensure that the Kullback-Leibler (KL) divergence Table S1. Normal Mixture Approximations to -log(Ga(r, 1)) for r in [1, 5]. Normal mixture approximations to log(Ga(r, 1)) for r in [1, 5]. A separate normal mixture distribution is used to approximate each negative log gamma

Ŋ			4			ω				N				1				¬		
$\sqrt{\Psi'(r)} \ \sigma_r^2/\Psi'(r) = 0.4829$	$m_{rk} + \Psi(r)$	W_{rk}	$\sqrt{\Psi'(r)} \ \sigma_r^2/\Psi'(r)$	$m_{rk} + \Psi(r)$	W_{rk}	$\sigma_r^2/\Psi'(r)$	$\sqrt{\Psi'(r)}$	$m_{rk} + \Psi(r)$	W_{rk}	$\sigma_r^2/\Psi'(r)$	(W'(r)	$m_{rk} + \Psi(r)$	W_{rk}	$\sigma_r^2/\Psi'(r)$	(₩'(r)	$m_{rk} + \Psi(r)$	W_{rk}			
0.4829	-0.5582	0.5617	0.4660	-0.5422	0.5861	0.3804		-0.6673	0.4862	0.2892		-0.7848	0.3960	0.1904		-0.8141	0.2924	_		
	0.5013	0.3696		0.5501	0.3503			0.3084	0.3882			0.06357	0.3893			0.02214	0.2828	N		, , (1)
	1.784	0.06518		1.873	0.06010			1.443	0.1093			1.023	0.1640			0.8407	0.1625	ω		
	3.439	0.003533		3.578	0.003509			2.779	0.01527			2.126	0.04299			-0.7554	0.09697	4		0
								4.496	0.001014			3.460	0.007059			-0.1850	0.08053	σ		
												5.249	0.0006391			1.753	0.05949	6	χ.	, (·)
																2.747	0.01882	7		
																3.857	0.005167	8		9 21.0
																5.168	0.001194	9		
																6.964	0.0001863	10		