$$w^{(1)} = \log\left(\frac{N-n+0.5}{n+0.5}\right)$$

$w^{(1)}$ expands to a generalized form, where k_4, k_5 and k_6 determine how much weight is given to relevance and non-relevance information. $k_4 = -0.7$ when not much relevance information is available, or else 0.

$$w^{(1)} = \frac{k_5}{k_5+\sqrt{R}}\left(k_4 + \log\frac{N}{N-n}\right) + \frac{\sqrt{R}}{k_5+\sqrt{R}}\log\frac{r+0.5}{R-r+0.5} - \frac{k_6}{k_6+\sqrt{S}}\log\frac{n}{N-n} - \frac{\sqrt{S}}{k_6+\sqrt{S}}\log\frac{s+0.5}{S-s+0.5}$$

or, it can also be written as:

$$w^{(1)} = k_4\frac{k_5}{k_5+\sqrt{R}} + \log\left[\left(\frac{N}{N-n}\right)^{\frac{k_5}{k_5+\sqrt{R}}}\cdot\left(\frac{r+0.5}{R-r+0.5}\right)^{\frac{\sqrt{R}}{k_5+\sqrt{R}}}\cdot\left(\frac{N-n}{n}\right)^{\frac{k_6}{k_6+\sqrt{S}}}\cdot\left(\frac{S-s+0.5}{s+0.5}\right)^{\frac{\sqrt{S}}{k_6+\sqrt{S}}}\right]$$

w	Scaling	TF	DF	QTF	Correction factor	Parameters
$BM0$		1				
$BM1$	s_3	1	$w^{(1)}$	$\frac{qtf}{k_3+qtf}$	$k_2\cdot nq\cdot\frac{avdl-dl}{avdl+dl}$	
$BM15$	$s_1 s_3$	$\frac{tf}{k_1+tf}$	$w^{(1)}$	$\frac{qtf}{k_3+qtf}$	$k_2\cdot nq\cdot\frac{avdl-dl}{avdl+dl}$	$s_i = \max(k_i,1)$ or 1 if $k_2 = 0$
$BM11$	$s_1 s_3$	$\frac{tf}{k_1\cdot\frac{dl}{avdl}+tf}$	$w^{(1)}$	$\frac{qtf}{k_3+qtf}$	$k_2\cdot nq\cdot\frac{avdl-dl}{avdl+dl}$	$s_i = \max(k_i,1)$ or 1 if $k_2 = 0$
$BM25$	$s_1 s_3$	$\frac{tf^c}{K+tf^c}$	$w^{(1)}$	$\frac{qtf}{k_3+qtf}$	$k_2\cdot nq\cdot\frac{avdl-dl}{avdl+dl}$	$s_i = k_i+1$, $c = 1+mK$, $m \geq 0$ $K = k_1\left((1-b)+b\cdot\frac{dl}{avdl}\right)$
$BM25(k_1,k_2,k_3,b)$ The general form as a function of k_1, k_2, k_3, b and $m = 0$.	$w = (k_1+1)\cdot(k_3+1)\cdot\frac{tf}{k_1\left((1-b)+b\cdot\frac{dl}{avdl}\right)+tf}\cdot\log\left(\frac{N-n+0.5}{n+0.5}\right)\cdot\frac{qtf}{k_3+qtf} + k_2\cdot nq\cdot\frac{avdl-dl}{avdl+dl}$					
$BM25(k_1,0,k_3,b)$ The form, rearranged, after six years of trial-and-error from TREC3 to TREC8 (1995-2000)	$w = \frac{(k_1+1)\cdot tf}{k_1\left((1-b)+b\cdot\frac{dl}{avdl}\right)+tf}\cdot\log\left(\frac{N-n+0.5}{n+0.5}\right)\cdot\frac{(k_3+1)\cdot qtf}{k_3+qtf}$					