The Penguin Encyclopedia of Places by W. G. Moore and the Graphical law

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Abstract

We study the The Penguin Encyclopedia of Places by W. G. Moore. We draw the natural logarithm of the number of entries, normalised, starting with a letter vs the natural logarithm of the rank of the letter, normalised. We conclude that the Dictionary can be characterised by BP(4, $\beta H = 0.04$), i.e. the Bethe-Peierls curve in the presence of four nearest neighbours and little external magnetic field, H, with $\beta H = 0.04$. β is $\frac{1}{k_B T}$ where, T is temperature and k_B is the tiny Boltzmann constant.

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letter	A	B	C	D	E	F	G	H	I	J	K	L	M
number	615	773	728	295	252	235	356	363	164	110	457	422	651
letter	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
number	350	188	503	40	348	900	424	97	169	309	2	73	67

TABLE I. The Penguin Encyclopedia of Places, place names: the odd rows represent letters of the English alphabet, the even rows represent the corresponding number of the names of the places of The Penguin Encyclopedia of Places , [1].

I. INTRODUCTION

"From Dan to Beersheba"–a proverb.

The encyclopedia is captivating, tells us among many, the following. Name of the capital of Evenki NA region in the central Siberia is Tura, Sumy is region in the Ukraine with the capital, Sumy. Andalusia is in Spain. Islas Malvinas is the Argentine name of Falkland Islands. Lombok is a place in Indonesia where flora and fauna are transitional between Asiatic and Australian. Banka is an island in Indonesia being one of the world's chief tin mining centers. Srerampore was a Danish Colony for nearly hundred years. Naha was the capital of the Okinawa prefecture, japan. Kotlas is a town in the Archangel region in the USSR. Kotka is a place in Finland. Manisha is ancient magnesia, is in Turkey. Mantua is in Italy. Sea of Marmara lies between European and Asiatic Turkey. Komotini is a place in Greece. Komati river is in South Africa. Lashio is a town in the Shan state in Myanmar. Motala is a place in Sweden. Mason-Dixon line is in USA. Turfan is a place in China. Trikkala is in Greece. Mölndal is in Sweden. Teplitz is in Czechoslovakia. Monopoli is in Italy. Meta river is in Colombia/Venezuela. Moffat is in Scotland. Mocha is in Yemen. Mosquito Coast is in Nicaragua. Wuhu is in China. Atria(Adria) is in Italy. Azul is in Argentina. Madura is an island off Java in Indonesia where, Madurai, formerly Madura, is in South India.

We count name after name, and enlist the number of the names of the places starting with an English letter. The result is the table, I. We have not taken the addendum, which are very few entries, into account. To visualise we plot the number of the names of the places against the letters of the English alphabet, in the adjoining figure, fig.1. Next is there a magnetic field pattern behind the number of the names of the places of The Penguin Encyclopedia of

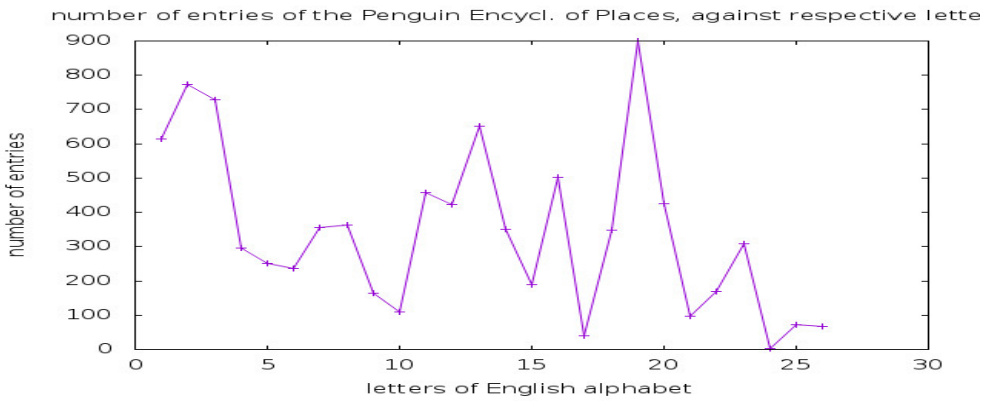

FIG. 1. The vertical axis is the number of the names of the places of The Penguin Encyclopedia of Places , [1]. The horizontal axis is the letters of the English alphabet. Letters are represented by the sequence number in the alphabet.

Places , [1]? The answer is in the affirmative. The rest of the paper goes to elaborate on the affirmation. We have started considering magnetic field pattern in [2], in the languages we converse with. We have studied there, a set of natural languages, [2] and have found existence of a magnetisation curve under each language. We have termed this phenomenon as the Graphical Law.

Then, we moved on to investigate into, [3], dictionaries of five disciplines of knowledge and found existence of a curve magnetisation under each discipline. This was followed by finding of the graphical law behind the bengali language,[4] and the basque language[5]. This was pursued by finding of the graphical law behind the Romanian language, [6], five more disciplines of knowledge, [7], Onsager core of Abor-Miri, Mising languages,[8], Onsager Core of Romanised Bengali language,[9], the graphical law behind the Little Oxford English Dictionary, [10], the Oxford Dictionary of Social Work and Social Care, [11], the Visayan-English Dictionary, [12], Garo to English School Dictionary, [13], Mursi-English-Amharic Dictionary, [14] and Names of Minor Planets, [15], A Dictionary of Tibetan and English, [16], Khasi English Dictionary, [17], Turkmen-English Dictionary, [18], Websters Universal Spanish-English Dictionary, [19], A Dictionary of Modern Italian, [20], Langenscheidt's German-English Dictionary, [21], Essential Dutch dictionary by G. Quist and D. Strik, [22], Swahili-English dictionary by C. W. Rechenbach, [23], Larousse Dictionnaire De Poche for the French, [24], the Onsager's solution behind the Arabic, [25], the graphical law behind Langenscheidt Taschenwörterbuch Deutsch-Englisch / Englisch-Deutsch, Völlige Neubear-

beitung, [26], the graphical law behind the NTC's Hebrew and English Dictionary by Arie Comey and Naomi Tsur, [27], the graphical law behind the Oxford Dictionary Of Media and Communication, [28], the graphical law behind the Oxford Dictionary Of Mathematics, Penguin Dictionary Of Mathematics, [29], the Onsager's solution behind the Arabic Second part, [30], the graphical law behind the Penguin Dictionary Of Sociology, [31], behind the Concise Oxford Dictionary Of Politics, [32], a Dictionary Of Critical Theory by Ian Buchanan, [33], the Penguin Dictionary Of Economics, [34], the Concise Gojri-English Dictionary by Dr. Rafeeq Anjum, [35], A Dictionary of the Kachin Language by Rev.O.Hanson, [36], A Dictionary Of World History by Edmund Wright, [37], Ekagi-Dutch-English-Indonesian Dictionary by J. Steltenpool, [38], A Dictionary of Plant Sciences by Michael Allaby, [39], respectively. The graphical law was pursued more in Along the side of the Onsager's solution, the Ekagi language ,[40], Along the side of the Onsager's solution, the Ekagi language-Part Three, [41], Oxford Dictionary of Biology by Robert S. Hine and the Graphical law, [42], A Dictionary of the Mikir Language by G. D. Walker and the Graphical law, [43], A Dictionary of Zoology by Michael Allaby and the Graphical Law, [44], Dictionary of all Scriptures and Myths by G. A. Gaskell and the Graphical Law, [45], Dictionary of Culinary Terms by Philippe Pilibossian and the Graphical law, [46], A Greek and English Lexicon by H.G.Liddle et al simplified by Didier Fontaine and the Graphical law, [47], Learner's Mongol-English Dictionary and the Graphical law, [48], Complete Bulgarian-English Dictionary and the Graphical law, [49], A Dictionary of Sindhi Literature by Dr. Motilal Jotwani and the Graphical Law, [50], Penguin Dictionary of Physics, the Fourth Edition, by John Cullerne, and the Graphical law, [51], Oxford Dictionary of Chemistry, the seventh edition and the Graphical Law, [52], A Burmese-English Dictionary, Part I-Part V, by J. A. Stewart and C. W. Dunn et al, head entries and the Graphical Law, [53], The Graphical Law behind the head words of Dictionary Kannada and English written by W. Reeve, revised, corrected and enlarged by Daniel Sanderson, [54], Sanchayita and the Graphical Law, [55], Samsad Bangla Abhidan and The Graphical Law, [56], Bangiya Sabdakosh and The Graphical Law, [57], Samsad Bengali-English Dictionary and The Graphical Law, [58], Rudyard Kipling's Verse and the Graphical Law, [59], W. B. Yeats, The Poems and the Graphical Law, [60], respectively.

The planning of the paper is as follows. We give an introduction to the standard curves of magnetisation of Ising model in the section II. In the section III, we describe the graphical law analysis of the names of the places of The Penguin Encyclopedia of Places by W. G.

Moore, [1]. Sections IV, V are Acknowledgment and Bibliography respectively.

II. MAGNETISATION

A. Bragg-Williams approximation

Let us consider a coin. Let us toss it many times. Probability of getting head or, tale is half i.e. we will get head and tale equal number of times. If we attach value one to head, minus one to tale, the average value we obtain, after many tossing is zero. Instead let us consider a one-sided loaded coin, say on the head side. The probability of getting head is more than one half, getting tale is less than one-half. Average value, in this case, after many tossing we obtain is non-zero, the precise number depends on the loading. The loaded coin is like ferromagnet, the unloaded coin is like paramagnet, at zero external magnetic field. Average value we obtain is like magnetisation, loading is like coupling among the spins of the ferromagnetic units. Outcome of single coin toss is random, but average value we get after long sequence of tossing is fixed. This is long-range order. But if we take a small sequence of tossing, say, three consecutive tossing, the average value we obtain is not fixed, can be anything. There is no short-range order.

Let us consider a row of spins, one can imagine them as spears which can be vertically up or, down. Assume there is a long-range order with probability to get a spin up is two third. That would mean when we consider a long sequence of spins, two third of those are with spin up. Moreover, assign with each up spin a value one and a down spin a value minus one. Then total spin we obtain is one third. This value is referred to as the value of long-range order parameter. Now consider a short-range order existing which is identical with the long-range order. That would mean if we pick up any three consecutive spins, two will be up, one down. Bragg-Williams approximation means short-range order is identical with long-range order, applied to a lattice of spins, in general. Row of spins is a lattice of one dimension.

Now let us imagine an arbitrary lattice, with each up spin assigned a value one and a down spin a value minus one, with an unspecified long-range order parameter defined as above by $L = \frac{1}{N}\Sigma_i \sigma_i$, where σ_i is i-th spin, N being total number of spins. L can vary from minus one to one. $N = N_+ + N_-$, where N_+ is the number of up spins, N_- is the number of down spins.

$L = \frac{1}{N}(N_+ - N_-)$. As a result, $N_+ = \frac{N}{2}(1+L)$ and $N_- = \frac{N}{2}(1-L)$. Magnetisation or, net magnetic moment , M is $\mu\Sigma_i\sigma_i$ or, $\mu(N_+ - N_-)$ or, μNL, $M_{max} = \mu N$. $\frac{M}{M_{max}} = L$. $\frac{M}{M_{max}}$ is referred to as reduced magnetisation. Moreover, the Ising Hamiltonian,[62], for the lattice of spins, setting μ to one, is $-\epsilon\Sigma_{n.n}\sigma_i\sigma_j - H\Sigma_i\sigma_i$, where n.n refers to nearest neighbour pairs. The difference $\triangle E$ of energy if we flip an up spin to down spin is, [63], $2\epsilon\gamma\bar{\sigma} + 2H$, where γ is the number of nearest neighbours of a spin. According to Boltzmann principle, $\frac{N_-}{N_+}$ equals $exp(-\frac{\triangle E}{k_B T})$, [64]. In the Bragg-Williams approximation,[65], $\bar{\sigma} = L$, considered in the thermal average sense. Consequently,

$$ln\frac{1+L}{1-L} = 2\frac{\gamma\epsilon L + H}{k_B T} = 2\frac{L + \frac{H}{\gamma\epsilon}}{\frac{T}{\gamma\epsilon/k_B}} = 2\frac{L+c}{\frac{T}{T_c}} \tag{1}$$

where, $c = \frac{H}{\gamma\epsilon}$, $T_c = \gamma\epsilon/k_B$, [66]. $\frac{T}{T_c}$ is referred to as reduced temperature.
Plot of L vs $\frac{T}{T_c}$ or, reduced magentisation vs. reduced temperature is used as reference curve. In the presence of magnetic field, $c \neq 0$, the curve bulges outward. Bragg-Williams is a Mean Field approximation. This approximation holds when number of neighbours interacting with a site is very large, reducing the importance of local fluctuation or, local order, making the long-range order or, average degree of freedom as the only degree of freedom of the lattice. To have a feeling how this approximation leads to matching between experimental and Ising model prediction one can refer to FIG.12.12 of [63]. W. L. Bragg was a professor of Hans Bethe. Rudlof Peierls was a friend of Hans Bethe. At the suggestion of W. L. Bragg, Rudlof Peierls following Hans Bethe improved the approximation scheme, applying quasi-chemical method.

B. Bethe-peierls approximation in presence of four nearest neighbours, in absence of external magnetic field

In the approximation scheme which is improvement over the Bragg-Williams, [62],[63],[64],[65],[66], due to Bethe-Peierls, [67], reduced magnetisation varies with reduced temperature, for γ neighbours, in absence of external magnetic field, as

$$\frac{ln\frac{\gamma}{\gamma-2}}{ln\frac{factor-1}{factor^{\frac{\gamma-1}{\gamma}} - factor^{\frac{1}{\gamma}}}} = \frac{T}{T_c}; factor = \frac{\frac{M}{M_{max}} + 1}{1 - \frac{M}{M_{max}}}. \tag{2}$$

$ln\frac{\gamma}{\gamma-2}$ for four nearest neighbours i.e. for $\gamma = 4$ is 0.693. For a snapshot of different kind of magnetisation curves for magnetic materials the reader is urged to give a google

BW	BW(c=0.01)	BP(4,$\beta H = 0$)	reduced magnetisation
0	0	0	1
0.435	0.439	0.563	0.978
0.439	0.443	0.568	0.977
0.491	0.495	0.624	0.961
0.501	0.507	0.630	0.957
0.514	0.519	0.648	0.952
0.559	0.566	0.654	0.931
0.566	0.573	0.7	0.927
0.584	0.590	0.7	0.917
0.601	0.607	0.722	0.907
0.607	0.613	0.729	0.903
0.653	0.661	0.770	0.869
0.659	0.668	0.773	0.865
0.669	0.676	0.784	0.856
0.679	0.688	0.792	0.847
0.701	0.710	0.807	0.828
0.723	0.731	0.828	0.805
0.732	0.743	0.832	0.796
0.756	0.766	0.845	0.772
0.779	0.788	0.864	0.740
0.838	0.853	0.911	0.651
0.850	0.861	0.911	0.628
0.870	0.885	0.923	0.592
0.883	0.895	0.928	0.564
0.899	0.918		0.527
0.904	0.926	0.941	0.513
0.946	0.968	0.965	0.400
0.967	0.998	0.965	0.300
0.987		1	0.200
0.997		1	0.100
1	1	1	0

TABLE II. Reduced magnetisation vs reduced temperature datas for Bragg-Williams approximation, in absence of and in presence of magnetic field, $c = \frac{H}{\gamma\epsilon} = 0.01$, and Bethe-Peierls approximation in absence of magnetic field, for four nearest neighbours .

search "reduced magnetisation vs reduced temperature curve". In the following, we describe datas generated from the equation(1) and the equation(2) in the table, II, and curves of magnetisation plotted on the basis of those datas. BW stands for reduced temperature in Bragg-Williams approximation, calculated from the equation(1). BP(4) represents reduced temperature in the Bethe-Peierls approximation, for four nearest neighbours, computed from the equation(2). The data set is used to plot fig.2. Empty spaces in the table, II, mean corresponding point pairs were not used for plotting a line.

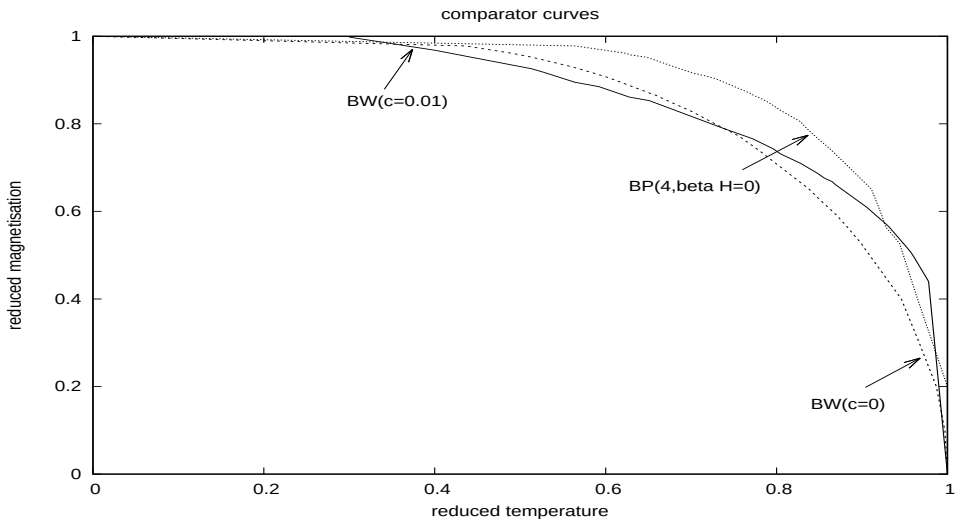

FIG. 2. Reduced magnetisation vs reduced temperature curves for Bragg-Williams approximation, in absence(dark) of and presence(inner in the top) of magnetic field, $c = \frac{H}{\gamma\epsilon} = 0.01$, and Bethe-Peierls approximation in absence of magnetic field, for four nearest neighbours (outer in the top).

C. Bethe-peierls approximation in the presence of four nearest neighbours, in the presence of external magnetic field

In the Bethe-Peierls approximation scheme , [67], reduced magnetisation varies with reduced temperature, for γ neighbours, in presence of external magnetic field, as

$$\frac{ln\frac{\gamma}{\gamma-2}}{ln\frac{factor-1}{e^{\frac{2\beta H}{\gamma}}factor^{\frac{\gamma-1}{\gamma}}-e^{-\frac{2\beta H}{\gamma}}factor^{\frac{1}{\gamma}}}} = \frac{T}{T_c}; factor = \frac{\frac{M}{M_{max}}+1}{1-\frac{M}{M_{max}}}. \tag{3}$$

Derivation of this formula ala [67] is given in the appendix.
$ln\frac{\gamma}{\gamma-2}$ for four nearest neighbours i.e. for $\gamma = 4$ is 0.693. For four neighbours,

$$\frac{0.693}{ln\frac{factor-1}{e^{\frac{2\beta H}{\gamma}}factor^{\frac{\gamma-1}{\gamma}}-e^{-\frac{2\beta H}{\gamma}}factor^{\frac{1}{\gamma}}}} = \frac{T}{T_c}; factor = \frac{\frac{M}{M_{max}}+1}{1-\frac{M}{M_{max}}}. \tag{4}$$

In the following, we describe datas in the table, III, generated from the equation(4) and curves of magnetisation plotted on the basis of those datas. BP(m=0.03) stands for reduced temperature in Bethe-Peierls approximation, for four nearest neighbours, in presence of a variable external magnetic field, H, such that $\beta H = 0.06$. calculated from the equation(4). BP(m=0.025) stands for reduced temperature in Bethe-Peierls approximation, for four nearest neighbours, in presence of a variable external magnetic field, H, such that

$\beta H = 0.05$. calculated from the equation(4). BP(m=0.02) stands for reduced temperature in Bethe-Peierls approximation, for four nearest neighbours, in presence of a variable external magnetic field, H, such that $\beta H = 0.04$. calculated from the equation(4). BP(m=0.01) stands for reduced temperature in Bethe-Peierls approximation, for four nearest neighbours, in presence of a variable external magnetic field, H, such that $\beta H = 0.02$. calculated from the equation(4). BP(m=0.005) stands for reduced temperature in Bethe-Peierls approximation, for four nearest neighbours, in presence of a variable external magnetic field, H, such that $\beta H = 0.01$. calculated from the equation(4). The data set is used to plot fig.3. Empty spaces in the table, III, mean corresponding point pairs were not used for plotting a line.

BP(m=0.03)	BP(m=0.025)	BP(m=0.02)	BP(m=0.01)	BP(m=0.005)	reduced magnetisation
0	0	0	0	0	1
0.583	0.580	0.577	0.572	0.569	0.978
0.587	0.584	0.581	0.575	0.572	0.977
0.647	0.643	0.639	0.632	0.628	0.961
0.657	0.653	0.649	0.641	0.637	0.957
0.671	0.667		0.654	0.650	0.952
	0.716			0.696	0.931
0.723	0.718	0.713	0.702	0.697	0.927
0.743	0.737	0.731	0.720	0.714	0.917
0.762	0.756	0.749	0.737	0.731	0.907
0.770	0.764	0.757	0.745	0.738	0.903
0.816	0.808	0.800	0.785	0.778	0.869
0.821	0.813	0.805	0.789	0.782	0.865
0.832	0.823	0.815	0.799	0.791	0.856
0.841	0.833	0.824	0.807	0.799	0.847
0.863	0.853	0.844	0.826	0.817	0.828
0.887	0.876	0.866	0.846	0.836	0.805
0.895	0.884	0.873	0.852	0.842	0.796
0.916	0.904	0.892	0.869	0.858	0.772
0.940	0.926	0.914	0.888	0.876	0.740
	0.929			0.877	0.735
	0.936			0.883	0.730
	0.944			0.889	0.720
	0.945				0.710
	0.955			0.897	0.700
	0.963			0.903	0.690
	0.973			0.910	0.680
				0.909	0.670
	0.993			0.925	0.650
		0.976	0.942		0.651
	1.00				0.640
		0.983	0.946	0.928	0.628
		1.00	0.963	0.943	0.592
			0.972	0.951	0.564
			0.990	0.967	0.527
				0.964	0.513
			1.00		0.500
				1.00	0.400
					0.300
					0.200
					0.100
					0

TABLE III. Bethe-Peierls approx. in the presence of little external magnetic fields

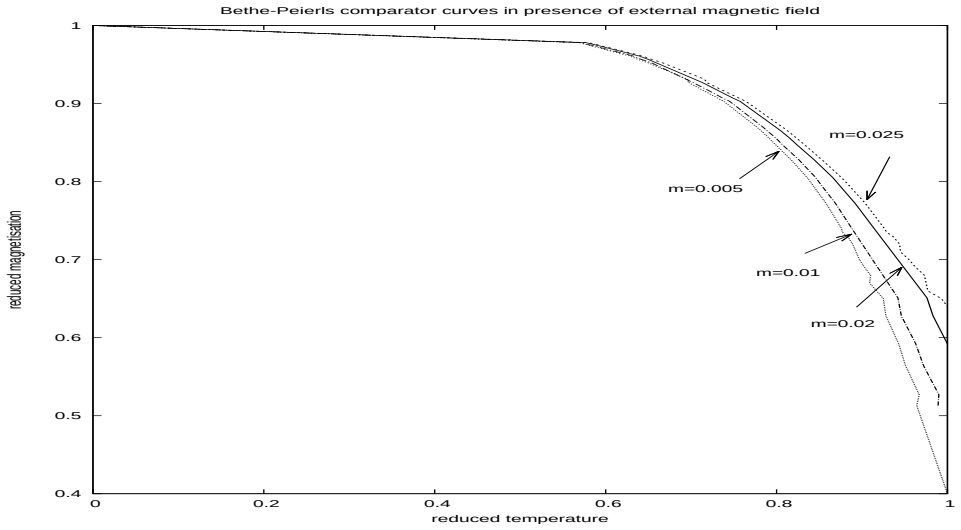

FIG. 3. Reduced magnetisation vs reduced temperature curves for Bethe-Peierls approximation in the presence of little external magnetic fields, for four nearest neighbours, with $\beta H = 2m$.

III. THE GRAPHICAL LAW ANALYSIS

For the purpose of exploring graphical law, we assort the letters according to the number of places, in the descending order, denoted by f and the respective rank, [61], denoted by k. k is a positive integer starting from one. Minimum number of places corresponding to a letter is two. Hence we attach a limiting number of place. The limiting rank, k_{lim}, is maximum rank plus one, here it is twenty seven and the limiting number of place, is one. As a result both $\frac{lnf}{lnf_{max}}$ and $\frac{lnk}{lnk_{lim}}$ varies from zero to one. Then we tabulate in the adjoining table, IV, and plot $\frac{lnf}{lnf_{max}}$ against $\frac{lnk}{lnk_{lim}}$ in the figure fig.4.

We then ignore the letter with which the highest number of place names start, tabulate in the adjoining table, IV, and redo the plot, normalising the lnfs with next-to-maximum lnf_{n-max}, and starting from $k = 2$ in the figure fig.5. Normalising the lnfs with next-to-next-to-maximum lnf_{2n-max}, we tabulate in the adjoining table, IV, and starting from $k = 3$ we draw in the figure fig.6 and continuing we get figures up to the figure fig.9.

k	lnk	lnk/lnk_{lim}	f	lnf	lnf/lnf_{max}	lnf/lnf_{nmax}	lnf/lnf_{nnmax}	lnf/lnf_{nnnmax}	lnf/$lnf_{nnnnmax}$	lnf/$lnf_{nnnnnmax}$
1	0	0	900	6.802	1	Blank	Blank	Blank	Blank	Blank
2	0.69	0.209	773	6.650	0.978	1	Blank	Blank	Blank	Blank
3	1.10	0.333	728	6.590	0.969	0.991	1	Blank	Blank	Blank
4	1.39	0.421	651	6.479	0.953	0.973	0.983	1	Blank	Blank
5	1.61	0.488	615	6.422	0.944	0.966	0.975	0.991	1	Blank
6	1.79	0.542	503	6.221	0.915	0.935	0.944	0.960	0.969	1
7	1.95	0.591	457	6.125	0.900	0.921	0.929	0.945	0.954	0.985
8	2.08	0.630	424	6.050	0.889	0.910	0.918	0.934	0.942	0.973
9	2.20	0.667	422	6.045	0.889	0.909	0.917	0.933	0.941	0.972
10	2.30	0.697	363	5.894	0.867	0.886	0.894	0.910	0.918	0.947
11	2.40	0.727	356	5.875	0.864	0.883	0.892	0.907	0.915	0.944
12	2.48	0.752	350	5.858	0.861	0.881	0.889	0.904	0.912	0.942
13	2.56	0.776	348	5.852	0.860	0.88	0.888	0.903	0.911	0.941
14	2.64	0.800	309	5.733	0.843	0.862	0.870	0.885	0.893	0.922
15	2.71	0.821	295	5.687	0.836	0.855	0.863	0.878	0.886	0.914
16	2.77	0.839	252	5.529	0.813	0.831	0.839	0.853	0.861	0.889
17	2.83	0.858	235	5.460	0.803	0.821	0.829	0.843	0.850	0.878
18	2.89	0.876	188	5.236	0.770	0.787	0.795	0.808	0.815	0.842
19	2.94	0.891	169	5.130	0.754	0.771	0.778	0.792	0.799	0.825
20	3.00	0.909	164	5.100	0.750	0.767	0.774	0.787	0.794	0.820
21	3.04	0.921	110	4.700	0.691	0.707	0.713	0.725	0.732	0.756
22	3.09	0.936	97	4.575	0.673	0.688	0.694	0.706	0.712	0.735
23	3.14	0.952	73	4.290	0.631	0.645	0.651	0.662	0.668	0.690
24	3.18	0.964	67	4.205	0.618	0.632	0.638	0.649	0.655	0.676
25	3.22	0.976	40	3.689	0.542	0.555	0.560	0.569	0.574	0.593
26	3.26	0.988	2	0.693	0.102	0.104	0.105	0.107	0.108	0.111
27	3.30	1	1	0	0	0	0	0	0	0

TABLE IV. Entries of the the Penguin Encyclopedia of Places: ranking, natural logarithm, normalisations

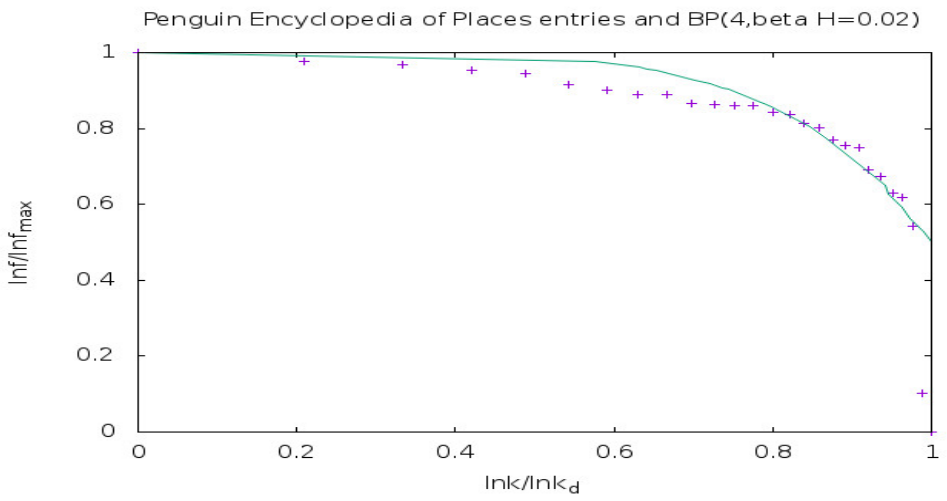

FIG. 4. Vertical axis is $\frac{lnf}{lnf_{max}}$ and horizontal axis is $\frac{lnk}{lnk_{lim}}$. The + points represent the names of the places of The Penguin Encyclopedia of Places by W. G. Moore, with the fit curve, BP(4,$\beta H = 0.02$) being the Bethe-Peierls curve in the presence of four nearest neighbours and in the presence of external magnetic field, $\beta H = 0.02$.

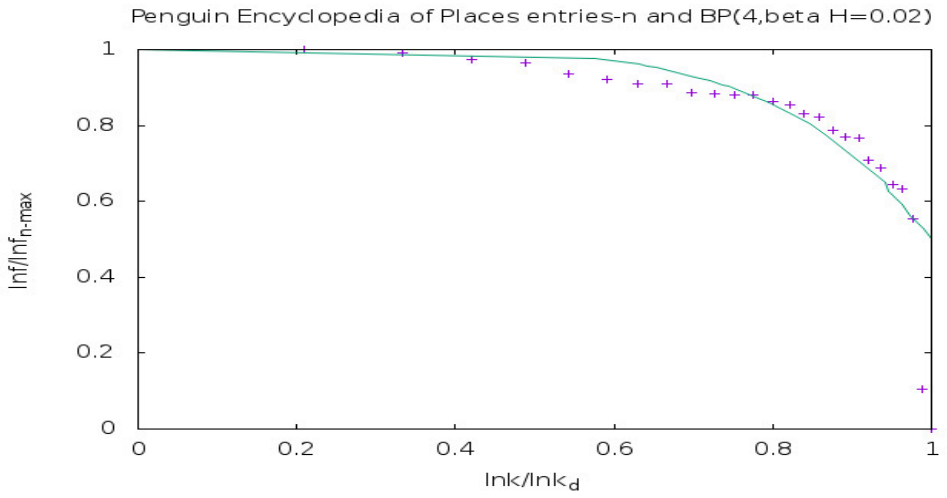

FIG. 5. Vertical axis is $\frac{lnf}{lnf_{n-max}}$ and horizontal axis is $\frac{lnk}{lnk_{lim}}$. The + points represent the names of the places of The Penguin Encyclopedia of Places by W. G. Moore, with the fit curve, BP(4,$\beta H = 0.02$) being the Bethe-Peierls curve in the presence of four nearest neighbours and in the presence of external magnetic field, $\beta H = 0.02$.

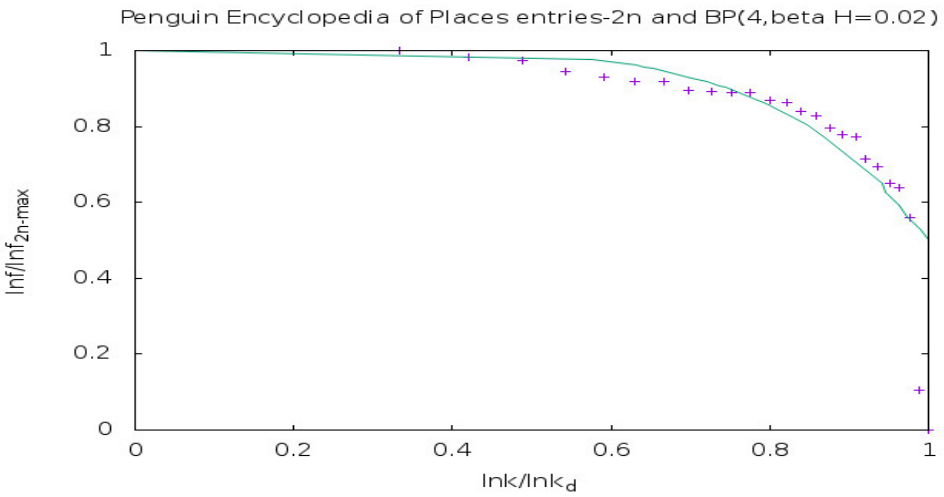

FIG. 6. Vertical axis is $\frac{lnf}{lnf_{2n-max}}$ and horizontal axis is $\frac{lnk}{lnk_{lim}}$. The + points represent the names of the places of The Penguin Encyclopedia of Places by W. G. Moore, with the fit curve, BP(4,$\beta H =$ 0.02) being the Bethe-Peierls curve in the presence of four nearest neighbours and in the presence of external magnetic field, $\beta H = 0.02$.

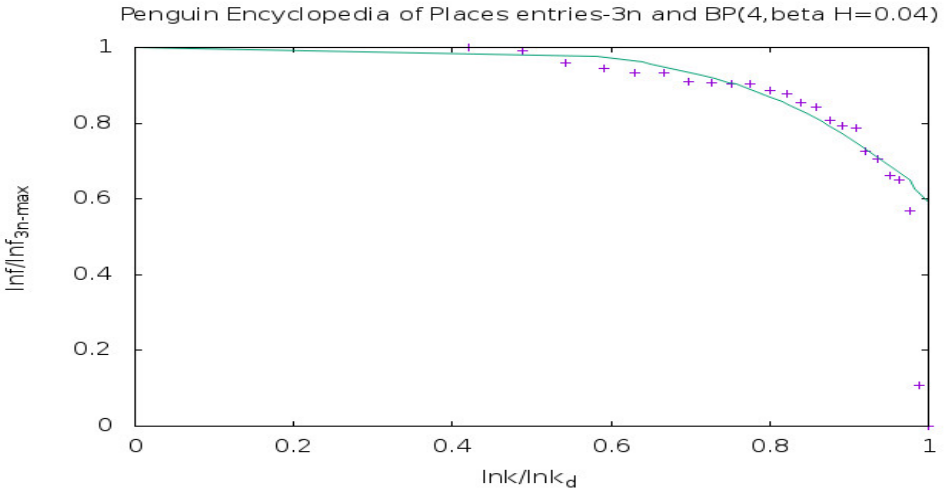

FIG. 7. Vertical axis is $\frac{lnf}{lnf_{3n-max}}$ and horizontal axis is $\frac{lnk}{lnk_{lim}}$. The + points represent the names of the places of The Penguin Encyclopedia of Places by W. G. Moore, with the fit curve, BP(4,$\beta H =$ 0.04) being the Bethe-Peierls curve in the presence of four nearest neighbours and in the presence of external magnetic field, $\beta H = 0.04$.

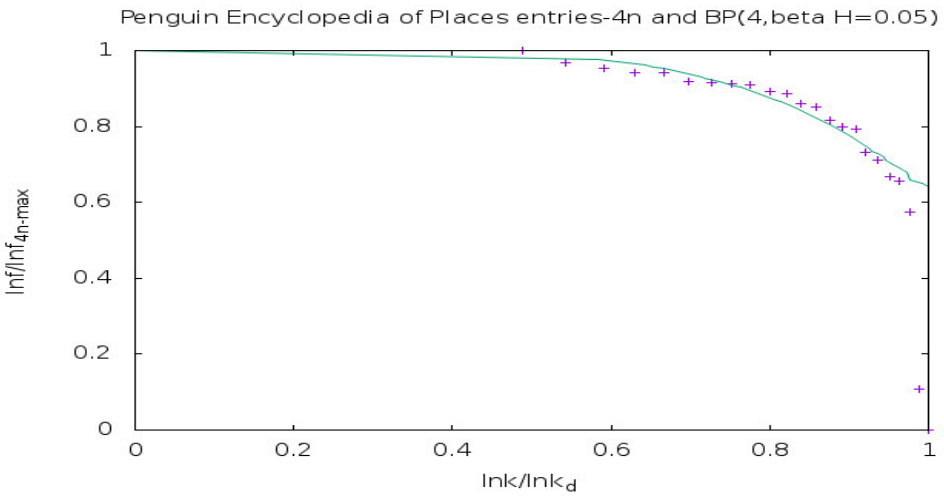

FIG. 8. Vertical axis is $\frac{lnf}{lnf_{4n-max}}$ and horizontal axis is $\frac{lnk}{lnk_{lim}}$. The + points represent the names of the places of The Penguin Encyclopedia of Places by W. G. Moore, with the fit curve, BP(4,$\beta H =$ 0.05) being the Bethe-Peierls curve in the presence of four nearest neighbours and in the presence of external magnetic field, $\beta H = 0.05$.

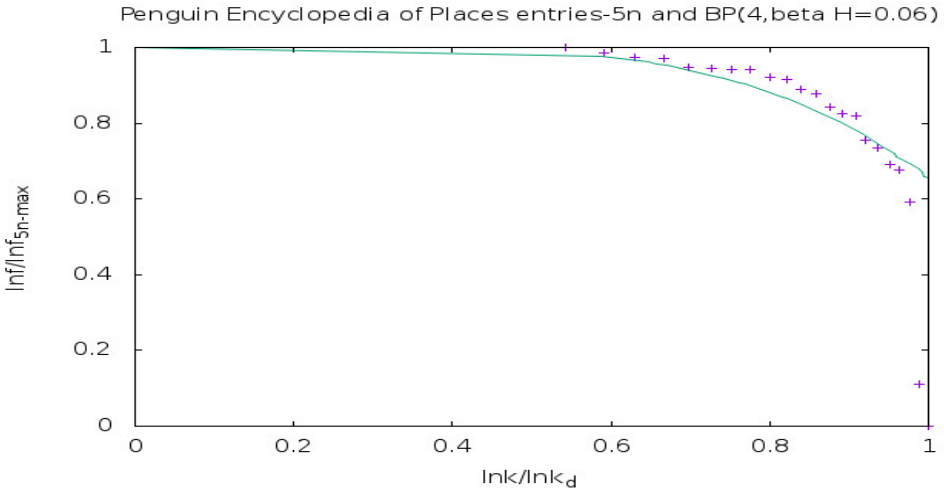

FIG. 9. Vertical axis is $\frac{lnf}{lnf_{5n-max}}$ and horizontal axis is $\frac{lnk}{lnk_{lim}}$. The + points represent the names of the places of The Penguin Encyclopedia of Places by W. G. Moore, with the fit curve, BP(4,$\beta H =$ 0.06) being the Bethe-Peierls curve in the presence of four nearest neighbours and in the presence of external magnetic field, $\beta H = 0.06$.

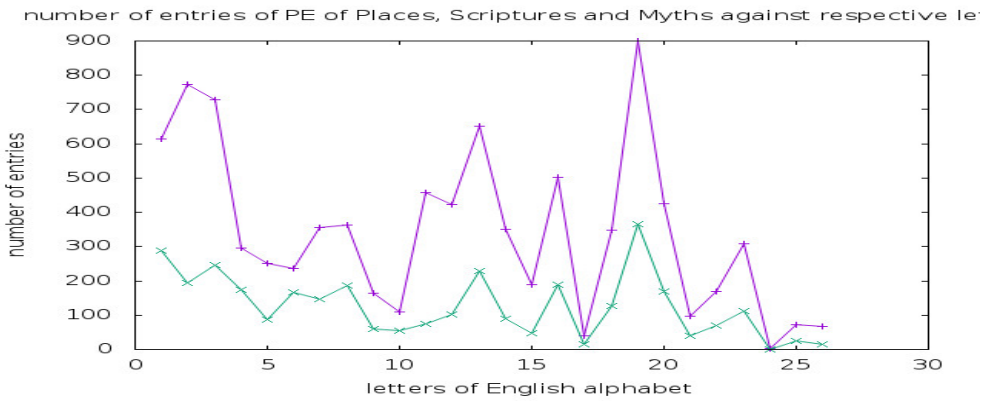

FIG. 10. The vertical axis is the number of the names of the places of The Penguin Encyclopedia of Places , [1] and the number of entries of the Scriptures and Myths,[69]. The horizontal axis is the letters of the English alphabet. Letters are represented by the sequence number in the alphabet.

A. conclusion

From the figures (fig.4-fig.9), we observe that there is a curve of magnetisation, behind the names of the places of The Penguin Encyclopedia of Places by W. G. Moore. This is the magnetisation curve BP(4,$\beta H = 0.04$), being in the Bethe-Peierls approximation, in the presence of four nearest neighbours and in the presence of external magnetic field, $\beta H = 0.04$.

Moreover, the associated correspondence is,

$$\frac{lnf}{lnf_{3n-max}} \longleftrightarrow \frac{M}{M_{max}}, \quad lnk \longleftrightarrow T.$$

Dictionary of all Scriptures and Myths by G. A. Gaskell, [69],[45], has the same graphical law characterisation. Comparison of the frequencies of entries of the names of the places of The Penguin Encyclopedia of Places , [1] and the number of entries of the Scriptures and Myths,[69], appear as in the fig.10.

IV. ACKNOWLEDGMENT

We have used the gnuplot for drawing the figures. We would like to thank the nehu library for allowing us to use the reference, [1].

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