Understanding Higher-Order Correlations Among Semantic Components in Embeddings

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Abstract

Independent Component Analysis (ICA) offers interpretable semantic components of embeddings. While ICA theory assumes that embeddings can be linearly decomposed into independent components, real-world data often do not satisfy this assumption. Consequently, non-independencies remain between the estimated components, which ICA cannot eliminate. We quantified these non-independencies using higher-order correlations and demonstrated that when the higher-order correlation between two components is large, it indicates a strong semantic association between them, along with many words sharing common meanings with both components. The entire structure of non-independencies was visualized using a maximum spanning tree of semantic components. These findings provide deeper insights into embeddings through ICA.

1 Introduction

Embeddings play an important role in natural language processing, ranging from word embeddings (Mikolov et al., 2013) to internal representations in language models (Devlin et al., 2019; Brown et al., 2020; Touvron et al., 2023). Understanding how embeddings represent meaning is crucial for unraveling black box NLP models.

Independent Component Analysis (ICA) (Hyvärinen and Oja, 2000) is an effective method for visualizing and interpreting the geometric structure of embeddings (Musil and Mareček, 2024; Yamagiwa et al., 2023). Just as PCA aims to make coordinate axes uncorrelated, ICA seeks to transform the coordinate axes into statistically independent components. The resulting axes from ICA tend to have sparser component values with a few larger values compared to PCA, which increases interpretability as the axes can be seen as specific semantic components (Fig. 1).

However it has been pointed out that the estimated 'independent components' are only approxi-



Figure 1: Heatmap visualization of 300-dimensional SGNS embeddings transformed by PCA and ICA, with axes sorted by variance and skewness, respectively. Each embedding has been normalized to have a norm of 1 for better visual interpretation. For each axis, the top 4 words (frequency $n_w \ge 100$ in text8) with largest component values were used. The first 100 axes are displayed in the top panels, and the first 5 axes with the word labels are displayed in the bottom panels. See Appendices A, B and G for details.

mately independent (Hyvärinen et al., 2001; Sasaki et al., 2013, 2014). This is because many realworld datasets cannot be accurately represented as a linear combination of independent components, contradicting the assumption of ICA theory.

In this study, we aim to further interpret the results of applying ICA to embeddings by focusing on the non-independence between 'independent components'. We measure the degree of nonindependence by calculating higher-order correlations between components and find that components with large higher-order correlations can be interpreted as having strong semantic associations. The entire structure is revealed by visualizing the maximum spanning tree of semantic components with higher-order correlations as edge weights.

2 Review: ICA-Transformed Embeddings

Procedure of ICA. For a centered embedding matrix $\mathbf{X} \in \mathbb{R}^{n \times d}$ that represents the meanings of n words by d-dimensional vectors, ICA¹ seeks a transformation $\mathbf{S} = \mathbf{XB}$ such that each component S_1, \dots, S_d of the transformed matrix $\mathbf{S} = [S_1, \dots, S_d]$ is as statistically independent as possible². The transformation \mathbf{B} can be expressed as the product of the whitening transformation matrix \mathbf{A} (e.g., PCA transformation) and the orthogonal transformation matrix \mathbf{R}_{ica} , i.e., the resulting \mathbf{S} is represented as

$$\mathbf{S} = \mathbf{X} \mathbf{A} \mathbf{R}_{\text{ica}}.$$
 (1)

Here, \mathbf{R}_{ica} is obtained by minimizing the mutual information³ $I(S_1 \cdots S_d) = \sum H(S_i) - H(S_1 \cdots S_d)$, which is equivalent to maximizing the non-gaussianity⁴ of the distributions of S_i (Hyvärinen and Oja, 2000). The normalized ICA-transformed embeddings, with each embedding in **S** rescaled to a norm of 1, offer high interpretability (Yamagiwa et al., 2023, 2024) and are used for visualizations in this paper.



Figure 2: Scatterplots of normalized word embeddings along the 10th and 20th axes. The axes for PCA and ICA-transformed embeddings were arranged in descending order of variance and skewness, respectively. In both transformations, the components are uncorrelated.

Comparison of PCA and ICA. Figure 2 shows that ICA can find the 'spiky and interpretable shape' of the embedding distribution (e.g., "biology" and "stars" for the 10th and 20th axes, respectively), but PCA cannot. This is because ICA determines the coordinate axes toward high non-gaussianity, while PCA only considers variance information.

3 Higher-Order Correlations Among Estimated Independent Components

Non-Independence in Real-World Data. The 'independent components' estimated by ICA on real-world data are uncorrelated but not completely independent, with dependencies existing between components (Hyvärinen et al., 2001; Sasaki et al., 2013, 2014). This is because ICA assumes a linear decomposition into independent components, an assumption frequently violated in reality.

Higher-Order Correlation. To quantify nonindependencies, methods like mutual information and Hilbert-Schmidt Independence Criterion (HSIC) (Gretton et al., 2005) exist. Here we use the higher-order correlation, the simplest measure in terms of computation and formulation. This measure is expressed as follows:

$$E(S_i^2 S_j^2) = \frac{1}{n} \sum_{t=1}^n \mathbf{S}_{t,i}^2 \mathbf{S}_{t,j}^2.$$
 (2)

Here, **S** is the whitened matrix⁵. This can also be interpreted as the covariance between S_i^2 and S_j^2 , plus one, as $\operatorname{cov}(S_i^2, S_j^2) = \operatorname{E}((S_i^2-1)(S_j^2-1)) =$ $\operatorname{E}(S_i^2S_j^2) - 1$. If S_i and S_j are independent of each other, then $\operatorname{E}(S_i^2S_j^2) = \operatorname{E}(S_i^2)\operatorname{E}(S_j^2) = 1$. Thus, the deviation of $\operatorname{E}(S_i^2S_j^2)$ from 1 is the degree of dependence between S_i and S_j .



Figure 3: Heatmaps of the correlation coefficient $E(S_iS_j)$ and the higher-order correlation $E(S_i^2S_j^2)$ of component pairs (S_i, S_j) from ICA on 300-dimensional SGNS embeddings. See Appendix C for details.

Figure 3 shows that the estimated independent components of the embeddings are uncorrelated but not completely independent, with varying degrees of higher-order correlations across pairs. These $E(S_i^2 S_j^2)$ values provide a useful metric of association, as demonstrated in the following section.

¹For the computation, FastICA (Hyvärinen, 1999) implemented in scikit-learn (Pedregosa et al., 2011) is used.

²The k-th component S_k is also referred to as Axis k.

 $^{{}^{3}}H(X) = -\int P_X(x) \log P_X(x) dx$ is the entropy.

⁴The degree to which a probability distribution deviates from a Gaussian distribution can be measured using statistics based on higher-order moments, such as skewness (the third moment) or the negentropy of the distribution.

⁵The components are (i) centered: $E(S_i) = 0$, the mean of each component is 0, (ii) scaled: $E(S_i^2) = 1$, the variance of each component is 1, and (iii) uncorrelated: $E(S_iS_j) = 0$, the correlations are all zero.

$E(S_0^2 S_{82}^2)$) = 1.927	$E(S_6^2 S_{96}^2)$		12 0	$_{5}) = 1.975$		$_{18}) = 2.124$	${\rm E}(S_{56}^2S_{126}^2)=1$		$\mathcal{E}(S^2_{63}S^2_{210}) = 2$	
Axis 0	Axis 82	Axis 6	Axis 96	Axis 12	Axis 66	Axis 16	Axis 118	Axis 56	Axis 126	Axis 63	Axis 210
dishes sauce fried dish cooked	beer beers ale brewing yeast	el spanish nacional jos de	o portuguese paulo rio portugal	rabbi talmud rabbis torah jewish	judah israelites yahweh elisha isaiah	blood organs liver kidney tissue	disorder mental disorders symptoms bipolar	cpu microprocessor processor cpus intel	pointer return string pointers node	organization international organizations interpol standardization	unesco itu interpol observer temporary
$E(S_0^2 S_{23}^2)$) = 0.990	$E(S_6^2 S_{13}^2)$	= 0.992	$E(S_{12}^2S_{5}^2)$	$_{7}) = 0.993$	$E(S_{16}^2S_{5}^2)$	$_{7}) = 0.996$	$E(S_{56}^2 S_{197}^2) = 0$.982	$E(S_{63}^2S_{18}^2) = 1.0$	073
Axis 0	Axis 23	Axis 6	Axis 13	Axis 12	Axis 57	Axis 16	Axis 57	Axis 56	Axis 197	Axis 63	Axis 18
dishes sauce fried dish cooked	statesman astronomer philosopher johann mathematician	el spanish nacional jos de	windows os unix linux microsoft	rabbi talmud rabbis torah jewish	s and was in by	blood organs liver kidney tissue	s and was in by	cpu microprocessor processor cpus intel	population median estimated residing total	organization international organizations interpol standardization	actress footballer musician actor singer

Table 1: (Top Row) Six randomly selected pairs of components from the top 50 pairs with the highest $|E(S_i^2 S_j^2) - 1|$ values. For each component, the top 5 words (frequency $n_w \ge 100$ in text8) with the largest component values are listed. (Bottom Row) Component pairs with small $E(S_i^2 S_k^2)$ values. For each component S_i with the smaller axis number in the pairs (S_i, S_j) in the top row, a component S_k with the smallest value of $|E(S_i^2 S_k^2) - 1|$ was selected.

	k = 1	k = 2	k = 3	k = 4	k = 5
List-2 (top- k)	69.0	65.0	64.0	64.5	56.5
List-3 (bottom 30%)	27.0	33.0	32.5	33.5	40.5
Can't decide	4.0	2.0	3.5	2.0	3.0

Table 2: The percentage of each list judged by the GPT model to be more semantically related to List-1.

4 Interpretation of Higher-Order Correlations as Semantic Relevance

4.1 Degree of Semantic Relevance

We show that the values of higher-order correlations $E(S_i^2 S_j^2)$ can be interpreted as the degree of associations between semantic components.

Results: Top Row of Table 1. The meanings of each component, represented by the listed words in component pairs with high $E(S_i^2 S_j^2)$ values, are strongly related. For example, focusing on Axis 0 and Axis 82, a pair with particularly large values of $E(S_i^2 S_j^2)$, we can interpret that Axis 0 has a meaning associated with "dishes" and Axis 82 with "beer", suggesting that there is a semantic relationship between them.

Results: Bottom Row of Table 1. On the other hand, for component pairs with $E(S_i^2 S_j^2)$ values close to 1, indicating that the components are considered independent, there is no clear relevance between the meanings of the components. For example, looking at the pair of Axis 0 and Axis 23, which has a small $E(S_i^2 S_j^2)$ value, we can interpret that Axis 0 represents "dishes" and Axis 23 represents "polymath", and there is no direct semantic relationship between them.

Detailed results are shown in Appendix G.

4.2 Quantitative Evaluation via GPT-40 mini

We conducted experiments to quantitatively evaluate whether higher-order correlations between ICA components represent semantic relationships.

Settings. Our experimental procedure was as follows. We first selected the top 100 ICA components, ranked by skewness. For each component i $(i = 0, \dots, 99)$, we created three word lists: Word list-1 comprised the top 5 words from component *i*, Word list-2 contained the top 5 words from the k-th most correlated component with component i $(k = 1, \ldots, 5)$, and Word list-3 consisted of the top 5 words from a randomly selected low-correlation component (chosen from the bottom 30% of correlated components). Using these lists, we generated pairs (list-1, list-2) and (list-1, list-3), and queried GPT-40 mini to determine which pair was more semantically related⁶. This procedure was executed for all 100 components, resulting in 200 total comparisons for each value of k from 1 to 5. The specific prompt used for GPT-40 mini model is provided in Appendix D.

Results and Discussion. Table 2 shows the result of the experiment. We can see that component pairs with higher-order correlations tend to be more semantically related (69.0% for k = 1 vs 27.0% for bottom 30%), and that semantic relatedness gradually declines as correlation decreases (69.0% at k = 1 to 56.5% at k = 5). These results quantitatively demonstrate that higher-order correlations between ICA components effectively reflect semantic relatedness between corresponding words.

⁶To mitigate potential biases, we randomly shuffled the order of the lists in the pairs and repeated this process with the reversed order: (list-1, list-3) and (list-1, list-2).

${\rm E}(S_{10}^2S_2^2)=2.323$		$E(S_{10}^2S_{16}^2)$		$E(S_{10}^2S_{160}^2) =$		$\mathbf{E}(S_{27}^2 S_{11}^2) = 1$		(~ 27~ 04)	= 1.997	(* 27* 104)	= 1.605
Axis 10	Axis 2	Axis 10	Axis 16	Axis 10	Axis 160	Axis 27	Axis 11	Axis 27	Axis 64	Axis 27	Axis 104
dna proteins rna	acid hydrogen acids	dna proteins rna	blood organs liver kidney	dna proteins rna	evolution evolutionary darwin selection	greek greece athens athenian	gaius caesar augustus lucius	greek greece athens athenian	goddess gods deity deities	greek greece athens athenian	archaeological neolithic bc
mrna	oh	mrna		mrna	selection	atheman		atheman	denties	atheman	pottery
w_k	$\mathbf{S}_{k,10}^2 \mathbf{S}_{k,2}^2$	w_k	$\mathbf{S}_{k,10}^2 \mathbf{S}_{k,16}^2$	w_k	$\mathbf{S}_{k,10}^2 \mathbf{S}_{k,160}^2$	w_k	$\mathbf{S}_{k,27}^2\mathbf{S}_{k,11}^2$	w_k	$\mathbf{S}_{k,27}^2 \mathbf{S}_{k,64}^2$	w_k	$\mathbf{S}_{k,27}^2 \mathbf{S}_{k,104}^2$
ribose	3755.7	adenylate	2079.8	utr	2381.5	laertius	898.3	demeter	2348.5	tiryns	1690.6
deoxyribose	2963.9	effectors	1842.5	reticulum	1942.0	preveza	788.0	hephaestus	2204.3	knossos	1348.1
phosphodiester	2850.2	antisense	1639.9	genomic	1668.6	xanthippus	764.2	hestia	2021.5	mycenaean	1205.6
biosynthesis	2510.1	cyclase	1638.9	homozygous	1599.1	rhadamanthus	735.5	hera	1744.6	lendering	1124.7
methyltransferase	2482.9	myosin	1201.8	cleaved	1181.0	thracians	711.8	cronos	1720.2	hissarlik	1103.1
pyrimidine	2399.6	axons	1144.2	tubulin	1152.4	alexandri	705.2	aphrodite	1675.9	melos	1006.3

Table 3: For 6 component pairs (S_i, S_j) selected from adjacent component pairs in the MST defined in Sec. 5, the top 6 words and their corresponding $\mathbf{S}_{t,i}^2 \mathbf{S}_{t,j}^2$ values that contribute the most to the $\mathbf{E}(S_i^2 S_j^2)$ value are shown.



Figure 4: Scatter plots of normalized word embeddings for axis pairs (10, 2) and (27, 64) with large values of higher-order correlations. Blue-labeled words are the top 4 words for each axis's component values, while red-labeled words are the top 6 words for the values of $\mathbf{S}_{t,i}^2 \mathbf{S}_{t,j}^2$. See Appendix C for all the pairs in Table 3.

4.3 Decomposition of Semantic Relevance

For a component pair (S_i, S_j) , words w_t with large values of $\mathbf{S}_{t,i}^2 \mathbf{S}_{t,j}^2$ are considered to make a significant contribution to the higher-order correlation $\mathrm{E}(S_i^2 S_j^2) = \frac{1}{n} \sum_{t=1}^{n} \mathbf{S}_{t,i}^2 \mathbf{S}_{t,j}^2$. Here we investigate words that significantly contribute to the $\mathrm{E}(S_i^2 S_j^2)$ values and gain a more concrete understanding of the relationships between components.

Results. Table 3 presents component pairs selected from the maximum spanning tree T_{150} (Sec. 5) and words significantly contributing to their $E(S_i^2 S_j^2)$ values. These words often relate to the meanings of both components, demonstrating additive compositionality. For example, in the Axis 10 and Axis 2 pair, words like *ribose*, *deoxyribose*, *phosphodiester*, *biosynthesis*, *methyltransferase*, and *pyrimidine* notably contribute to the $E(S_i^2 S_j^2)$ value, linking biomolecules and chemical components. Detailed results are shown in Appendix G.

Visualization. Figure 4 shows word embedding scatter plots for axis pairs (10, 2) and (27, 64) with large higher-order correlations to illustrate the distribution of words with significant contributions

to higher-order correlations. Unlike a typical independent component scatter plot (Fig. 2), these exhibit many words with large component values in both axes, reflecting the meanings of both axes and demonstrating the additive compositionality of embeddings. For the (10, 2) pair, words that notably contribute to the $E(S_i^2 S_j^2)$ (ribose, deoxyribose, phosphodiester, biosynthesis, methyltransferase, and pyrimidine) appear with significant values in both components. This abundance of words sharing both semantic components is characteristic of pairs with large higher-order correlations. Detailed results are shown in Appendix C.

5 Visualization of Non-Independence Structure

In this section, we construct a maximum spanning tree (MST) based on higher-order correlations to visualize the non-independence between estimated independent components.

Settings. The 300 ICA components, originally ordered by skewness with $i = 0, \dots, 299$, were resorted in descending order of semantic component consistency scores to prioritize axes that are more easily interpretable as specific semantic components. The semantic component consistency scores were determined by a word intrusion task (Chang et al., 2009). A higher consistency score indicates easier interpretability. Details of the scoring methods are provided in Appendix E.1. We introduce the notation σ to map the order of consistency scores to the original axis numbers in the skewness order: $\sigma(j)$ represents the axis number in the skewness sort for the axis with the *j*-th highest consistency score. Then, we consider a weighted complete graph G_{150} , with 150 components having high consistency scores $S_{\sigma(i)}$ $(i \in 0, \dots, 149)$ as nodes. For the edge between the node pair (S_i, S_j) ,



Figure 5: Subtrees of MST T_{150} defined in Sec. 5. Each node represents an independent component S_k (i.e., Axis k) estimated by ICA. The label of each node is "k : TopWord(k)", where TopWord(k) is the word with the largest component value along axis k among words with frequency $n_w \ge 100$ in the text8 corpus. The color of the edge between nodes (i, j) represents the magnitude of the $E(S_i^2 S_j^2)$ value between the components, with darker edge colors indicating larger values.

we set $c_{ij} = E(S_i^2 S_j^2)$ as the weight. To visualize and interpret G_{150} , we compute the maximum spanning tree (MST)⁷ T_{150} , a spanning tree that maximizes the sum of c_{ij} in the graph G_{150} . MST was relatively more interpretable than other subgraphs of graph G_{150} , providing a good balance between visibility and element relationships.

Interpretation of the MST. The MST T_{150} represents a graph structure expressing the nonindependence between estimated independent components. Since the edges in T_{150} connect component pairs with large higher-order correlations, we can interpret that there is a strong relationship between the components connected by these edges. Furthermore, the subtrees of T_{150} represent groups of semantically related components, and the components within these groups tend to have similar meanings.

Results and Discussion. Figure 5 shows a part of the MST T_{150} ; the entire MST T_{150} is exhibited in Appendix E.2. The colors correspond to the clusters obtained by applying spectral clustering⁸ (Ng et al., 2001) to T_{150} . The weights used for clustering are the higher-order correlations. From

the MST, we can infer structures such as connections and groupings of meanings among three or more components⁹. For example, semantically related component pairs such as (2: dna, 10: acid) in the pink cluster and (27: greek, 64: goddess) in the cyan cluster are connected by edges in T_{150} . Additionally, groups such as {168: license, 13: windows, 56: cpu} in the yellow cluster and {46: spacecraft, 35: aircraft, 47: ship} in the blue cluster form semantic clusters as sets of nodes connected by edges. The components within these groups can be interpreted as having meanings related to "computer" and "vehicle", respectively.

6 Conclusion

Both ICA and PCA transformations make the components uncorrelated. ICA goes further by making the components nearly independent, but some non-independence still remains. In this study, we used higher-order correlations to quantify the nonindependence between the components in the ICAtransformed word embeddings. By interpreting these as the semantic associations between the components and visualizing the overall structure, we can gain a deeper understanding of the latent semantic structure within the embeddings.

⁷We used minimum_spanning_tree implemented in NetworkX (Hagberg et al., 2008) for the computation of the MST. See Appendix E.2 for details.

⁸We used SpectralClustering implemented in scikit-learn (Pedregosa et al., 2011).

⁹Furthermore, in Appendix F, we conducted a dimensionality reduction experiment that numerically demonstrates how the MST effectively represents a significant structure among the components.

Limitations

- The embeddings used in the experiments are limited to SGNS word embeddings. For a more thorough analysis, it is necessary to conduct experiments using various types of embeddings.
- For large embedding matrices with a high number of data points *n*, ICA may fail to converge within a practical timeframe. To overcome this, we suggest using subsampled data to estimate the ICA transformation matrix, which can then be applied to unseen embedding vectors.
- When *n* is large, calculating higher-order correlations (eq. 2) may become computationally intensive. This calculation is similar to the computation of the variance-covariance matrix and can be approximated by subsampling data points. Further speedup can be achieved by parallelization of the computation.
- Since ICA leverages the non-Gaussianity of embedding distributions, it is not suitable for analysis if the original embeddings follow a multivariate Gaussian distribution.

Ethics Statement

This study complies with the ACL Ethics Policy.

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Code Availability

Code is available at https://github.com/ momoseoyama/hoc.

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A Details of Experimental Settings

The word embeddings used in the experiments were trained using Skip-gram with Negative Sampling (SGNS). The parameters used to train SGNS are summarized in Table 4. The corpus used for training is the text8 corpus (Mahoney, 2011), and the number of vocabulary words is n = 253,854.

Dimensionality	300
Epochs	100
Window size h	10
Negative samples ν	5
Learning rate	0.025
Min count	1

Table 4: SGNS parameters.

B Remarks on Axis 57 in Figure 1



Figure 6: Boxplot of correlation coefficients between word frequency n_w and the component values for the 0th to 99th axes of the ICA-transformed embeddings. Axis 57 shows a particularly high correlation coefficient.

An interesting vertical streak is observed in Axis 57 of the heatmap for ICA-transformed embeddings in Fig. 1. This streak can be explained by several factors. As shown in Fig. 6, Axis 57 exhibits a strong correlation between component values and word frequencies n_w , suggesting that Axis 57 is more associated with word frequency than with a specific semantic meaning. Additionally, the words used in Fig. 1 were selected from those appearing more than 100 times in the text8 corpus, resulting in a bias towards high-frequency



Figure 7: Scatter plot of word frequency n_w versus the component values of the 57th axis of the ICAtransformed embeddings. Words used in Fig. 1 are highlighted in dark blue. The regression line and coefficient of determination were calculated for words with a frequency of $n_w \ge 10$.



Figure 8: Scatter plot of word frequency n_w versus the component values of the 0th axis of the ICAtransformed embeddings. The settings are the same as in Fig. 7.

words. This tendency is further illustrated in Fig. 7, which demonstrates that words used in the heatmap $(n_w \ge 100)$ tend to have larger component values along Axis 57. In contrast, Fig. 8 shows that for axes with weak correlation to word frequency, the words used in the heatmap do not exhibit notably large component values. Consequently, large component values were observed along Axis 57 in the heatmap, a pattern that was unique to Axis 57 and not observed in other axes.

C Higher-Order Correlations

C.1 Distribution of Higher-Order Correlations

Figures 9a and 9b show histograms of higher-order correlations $E(S_i^2S_j^2)$ for pairs where i < j and

for all pairs including $E(S_i^4)$ where i = j, respectively. While there are component pairs where $E(S_i^2 S_j^2) < 1$, in Fig. 3, the range of values was truncated between 1.0 and 2.5 for visualization purposes.

C.2 Scatterplots for Independent Axes

Complementary Results for Sec. 4.3. Table 3 in Sec. 4.3 presented words with significant contributions to higher-order correlations for six axis pairs. While the main text illustrated the distribution of these highly contributing words through scatter plots for the two selected pairs, Figure 10 provides scatter plots for all the six pairs.

The Relationship Between the Magnitude of **Higher-Order Correlations and the Appearance** of Scatter Plots. Figure 11 presents the scatter plots of word embeddings for 24 component pairs, each with different higher-order correlation values. We can see that as the magnitude of higherorder correlation increases, the number of words with large component values along both axes increases as well. The selection of these 24 pairs was conducted as follows: First, we considered 150 components $S_{\sigma(0)}, \cdots, S_{\sigma(149)}$ with high semantic consistency (see Appendix E.1 for the calculation method). We then sorted all possible component pairs (S_i, S_j) $(i, j \in \sigma(0), \dots, \sigma(149))$ based on the value of $|E(S_i^2 S_i^2) - 1|$. We established 24 equally spaced grids between the minimum and maximum values, and selected pairs closest to each grid point without repetition.

Words with Significant Contributions to Higher-Order Correlations. We have observed words with significant contributions, i.e., with large values of $S_{t,i}^2 S_{t,j}^2$, to higher-order correlations $E(S_i^2 S_j^2)$ in Table 3 in Sec. 4.3, and will see further examples in Tables 8 and 9 in Appendix G. Such words are labeled in red in the scatter plots in Fig. 4 in Section 4.3, as well as in Figs. 10 and 11 in Appendix C.2. For axis pairs with large higher-order correlations, we observe a large number of words that make significant contributions to the higherorder correlations. The meanings of these words include both axes' meanings, demonstrating the additive compositionality of embeddings.

D Prompt Used for Evaluation by GPT-40 mini

The specific prompt used for the GPT-40 mini model is provided below.



Figure 9: Histograms of higher-order correlations.



Figure 10: Scatter plots of normalized word embeddings for axis pairs in Table 3. Blue-labeled words are the top 4 words for each axis's component values, while redlabeled words are the top 6 words for values of $\mathbf{S}_{t,i}^2 \mathbf{S}_{t,i}^2$.

```
Question:
You are given 2 list pairs (A, B), (C, D).
If one pair is more semantically relevant than
the other, answer the pair.
If you cannot determine, answer "XX".
List pair (A, B): ({wordlist_1}, {wordlist_2})
List pair (C, D): ({wordlist_1}, {wordlist_3})
Output:
"AB" if (A, B) is more semantically related
"CD" if (C, D) is more semantically related
"XX" if equally related, or you can't decide
Respond with only AB, CD, or XX.
```

When conducting the experiment, we took the following steps to eliminate any potential biases arising from the order of word sequences and specific label names.

- To remove the influence of word order within lists, we randomly shuffled the words in wordlist_1, wordlist_2, and wordlist_3.
- 2. To prevent bias in output labels, we conducted the experiment twice, swapping wordlist_2 and wordlist_3 between runs.

3. To account for order bias in the prompt, we randomly alternated the order of the following two lines:

List pair (A, B): ({wordlist_1}, {wordlist_2}) List pair (C, D): ({wordlist_1}, {wordlist_3})	
--	--

E Details of Visualization of Non-Independence Structure

E.1 Scoring ICA Axes: Word Intrusion Task

We assigned a semantic coherence score to each axis of the ICA-transformed embeddings using the word intrusion task method (Chang et al., 2009).

Word Intrusion Task. The word intrusion task is a method used to evaluate the semantic coherence of a set of k words by assessing the ability to identify an intruder word. For instance, consider the set of words {windows, os, unix, linux, microsoft}, which has a consistent theme of operating systems. In this case, an unrelated word such as waterskiing should be easily identifiable as an intruder, as it does not align with the theme of operating systems. In our experiment, we assigned coherence scores to the top k = 5 words (with frequency $n_w \ge 100$ in the text8 corpus) for each axis.

Selection of the Intruder Word. In order to select the intruder word for the set of top k words of each axis $a \in \{1, \ldots, d\}$, denoted as $top_k(a)$, we randomly chose a word from a pool of words that satisfy both of the following criteria simultaneously: (i) the word ranks in the lower 50% in terms of the component value on the axis a, and (ii) it ranks in the top 10% in terms of the component value on some axis other than a. For each axis, L = 100 intruder words are randomly selected, and $W_{int}(a)$ denotes the set of these L intruder words. **Scoring Method.** For the consistency score of the meaning of each axis a, Score(a), we adopted the metric proposed by Sun et al. (2016).

$$Score(a) = \frac{InterDist(a)}{IntraDist(a)}$$

$$IntraDist(a) = \sum_{\substack{w_i, w_j \in top_k(a) \\ w_i \neq w_j}} \frac{\operatorname{dist}(w_i, w_j)}{k(k-1)}$$
$$InterDist(a) = \max_{w \in W_{int}(a)} \sum_{w_i \in top_k(a)} \frac{\operatorname{dist}(w_i, w)}{k}$$

In this formula, we defined $\operatorname{dist}(w_i, w_j) = \|\mathbf{s}_i - \mathbf{s}_j\|$ for the ICA-transformed embeddings. Here, $\operatorname{IntraDist}(a)$ denotes the average distance between the top k words, and $\operatorname{InterDist}(a)$ represents the average distance between the top words and the intruder words. The score is higher when the intruder words are further away from the set $\operatorname{top}_k(a)$. Therefore, this score serves as a quantitative measure of the ability to identify the intruder word, thus it is used as a measure of the consistency of the meaning of the top k words and the interpretability of axes.

E.2 Entire Visualization of MST

Figure 12 is the visualization of maximum spanning tree (MST) T_{150} defined in Sec. 5. For a graph G_{150} , where the cost between nodes *i* and *j* defined as $c_{ij} = E(S_i^2 S_j^2)$, the algorithm to find the MST *T* is a greedy method that maximizes the total sum of costs, $\sum_{(i,j)\in T} c_{ij}$, subject to *T* being a spanning tree. The greedy algorithm selects edges in decreasing order of c_{ij} while adhering to the tree constraint. Due to the monotonicity of f(x) = 1/x, the decreasing order of c_{ij} is equivalent to the increasing order of $1/c_{ij}$. Thus, computing the MST T_{150} in the graph G_{150} is equivalent to finding the minimum spanning tree, which minimizes the sum of $1/c_{ij}$.

F Dimensionality Reduction via MST

	d=2	d = 5	d=10	d=20	d=50	d=100
Random Clustering on components (PCA)	0.04	0.08	0.12	0.16	0.23	0.29
Random Clustering on components (ICA)	0.04	0.08	0.12	0.17	0.24	0.29
Spectral Clustering on MST (PCA)	0.03	0.08	0.13	0.17	0.24	0.30
Spectral Clustering on MST (ICA)	0.06	0.13	0.18	0.23	0.28	0.31

Table 5: Word similarity scores for dimensionality reduction.

We experimentally confirmed that the structure of higher-order correlations between components can be applied to the dimensionality reduction of embeddings. Specifically, we performed Spectral Clustering on the maximum Spanning Tree (MST) T_{300} , which was computed based on the higherorder correlations between components. By reducing the dimensionality of the embeddings through averaging the clustered axes, we verified that the accuracy degradation in Word Similarity Tasks was mitigated compared to random clustering.

Experimental Settings. We conducted our experiments using the 300-dimensional word embeddings (SGNS). These embeddings were subjected to PCA and ICA to obtain components for clustering. We employed two clustering methods: (1) Random Clustering and (2) Spectral Clustering on the maximum Spanning Tree (MST) T_{300} , which was computed based on the higher-order correlations calculated using Eq. 2. Clustering was performed with the number of clusters ranging from 2 to 100. Dimensionality reduction was achieved by averaging the clustered axes, resulting in reduced dimensions from d = 2 to d = 100. The performance of the lower-dimensional embeddings was evaluated through Word Similarity Tasks. For the Word Similarity Tasks, we utilized six datasets: MEN (Bruni et al., 2014), WS353 (Finkelstein et al., 2002), MTurk (Radinsky et al., 2011), RW (Luong et al., 2013), SimLex999 (Hill et al., 2015), and SimVerb-3500 (Gerz et al., 2016). Each dataset comprises word pairs along with gold similarity scores, assigned by human annotators. We employed the Spearman rank correlation coefficient between human ratings and the cosine similarity of the word embeddings as the evaluation metric. The reported values represent the average scores across the six datasets.

Results and Discussion The experimental results are presented in Table 5. We observe that ICAbased methods outperform PCA-based methods. Moreover, our proposed method, Spectral Clustering on the MST of ICA components, consistently achieves the best performance across all dimensions. This can be attributed to the fact that components included in the same cluster on the MST likely have high semantic relevance and play similar roles in representing the meaning of words. These results validate that considering higher-order correlations between axes better preserves semantic relationships in compressed word embeddings, demonstrating the practical utility of our method. It is important to note that this evaluation assesses the performance of clustering using a downstream task of dimensionality reduction, rather than dimensionality reduction itself.

G Supplementary Tables for ICA Components and MST Subtrees

Table 6 shows all components of the ICAtransformed word embeddings used in our experiments. Associated with the experiments in Sec. 4.1, Table 7 shows the top 60 pairs with the highest $E(S_i^2 S_j^2)$ values. Additionally, in Table 8 and Table 9, we report on all component pairs in the subtrees of MST T_{150} shown in Fig. 5, extending the results from the selected pairs previously reported in Sec. 4.3.



Figure 11: Scatter plots of normalized word embeddings for 24 axis pairs. Blue-labeled words are the top 4 words for each axis's component values, while red-labeled words are the top 6 words for values of $\mathbf{S}_{t,i}^2 \mathbf{S}_{t,j}^2$.



Figure 12: Visualization of the entire MST T_{150} defined in Sec. 5. Each color of the nodes represents one of the ten clusters obtained by Spectral Clustering.

Axis 0	Axis 1	Axis 2	Axis 3	Axis 4	Axis 5	Axis 6	Axis 7	Axis 8	Axis 9	Axis 10	Axis 11	Axis 12	Axis 13	Axis 14
dishes	genus	acid	al	india	und	el	les	chinese	di	dna	gaius	rabbi	windows	topological
sauce	species	hydrogen	ibn	indian	der	spanish	du	china	italian	proteins	caesar	talmud	os	isomorphic
fried dish	extinct birds	acids oh	muhammad abu	nehru hindu	die das	nacional jos	des paris	beijing pinyin	della luigi	rna mrna	augustus lucius	rabbis torah	unix linux	banach topology
Axis 15	Axis 16	Axis 17	Axis 18	Axis 19	Axis 20	Axis 21	Axis 22	Axis 23	Axis 24	Axis 25	Axis 26	Axis 27	Axis 28	Axis 29
drugs	blood	consonants	actress	party	stars	japanese	instrument	statesman	church	russian	cars	greek	album	film
drug heroin	organs liver	vowels vowel	footballer musician	parties democrats	constellation star	japan tokyo	instruments bass	astronomer philosopher	churches communion	moscow russia	ford car	greece athens	albums band	films directed
lsd	kidney	consonant	actor	democratic	constellations	emperor	guitars	johann	orthodox	soviet	chassis	athenian	songs	director
Axis 30	Axis 31	Axis 32	Axis 33	Axis 34	Axis 35	Axis 36	Axis 37	Axis 38	Axis 39	Axis 40	Axis 41	Axis 42	Axis 43	Axis 44
stations	swedish	university	polish	irish	aircraft	http	rail	rifle	pitcher	isbn	islands	jpg	currency	plants
fm radio	sweden danish	college technology	poland krak	ireland dublin	flight boeing	www htm	trains railway	gun rifles	sox baseman	press ed	island archipelago	image png	currencies euro	plant flowers
broadcast	norwegian	institute	aw	ulster	airlines	html	train	ammunition	pitchers	routledge	atoll	gif	dollar	flowering
Axis 45	Axis 46	Axis 47	Axis 48	Axis 49	Axis 50	Axis 51	Axis 52	Axis 53	Axis 54	Axis 55	Axis 56	Axis 57	Axis 58	Axis 59
quantum particles	spacecraft nasa	ship ships	day observances	court judge	site website	coach quarterback	infectious infection	element metals	buildings building	appointed minister	cpu microprocessor	s and	imperfect perfect	concerto
particle	astronauts	hms	holidays	courts	forum	defensive	disease	elements	tower	cabinet	processor	was	future	fugue sonata
physics	astronaut	cruisers	holiday	trial	photos	bengals	infections	uranium	built	appoints	cpus	in	present	bwv
Axis 60	Axis 61	Axis 62	Axis 63	Axis 64	Axis 65	Axis 66	Axis 67	Axis 68	Axis 69	Axis 70	Axis 71	Axis 72	Axis 73	Axis 74
river tributaries	daughter married	company corporation	organization international	goddess gods	word meaning	judah israelites	blue white	football cup	gesserit bene	accusative nouns	game games	sexual sex	ip tcp	africa african
rivers	marriage	companies	organizations	deity	etymology	yahweh	red	fa	leto	genitive	gameplay	homosexual	protocols	africans
navigable	wife	shareholders	interpol	deities	term	elisha	yellow	club	duncan	noun	multiplayer	heterosexual	protocol	namibia
Axis 75 births	Axis 76	Axis 77	Axis 78 fiction	Axis 79 canada	Axis 80 serbian	Axis 81 philosophy	Axis 82 beer	Axis 83 wimbledon	Axis 84 highest	Axis 85 battle	Axis 86 rocks	Axis 87 solids	Axis 88 force	Axis 89
deaths	you know	painting paintings	novels	quebec	serbian	philosophical	beers	open	elevation	battles	volcanic	faces	army	austria belgium
alumni	me	art	novel	canadian	serbia	kant	ale	finalist	ft 1t	defeat	granite	vertices	military	luxembourg
Axis 90	we Axis 91	painters Axis 92	stories Axis 93	ontario Axis 94	croatia Axis 95	philosophers Axis 96	brewing Axis 97	quarter Axis 98	lowest Axis 99	fought Axis 100	geologic Axis 101	cube Axis 102	regiment Axis 103	germany Axis 104
Axis 90 comics	Axis 91 administrative	Axis 92 essex	Axis 93 languages	ethnic	Axis 95 dutch	Axis 96	Axis 97 capitalism	Axis 98 australia	Axis 99 missouri	empire	Axis 101 voltage	Axis 102 encryption	Axis 103 wavelength	Axis 104 archaeological
marvel	divided	somerset	spoken	peoples	van	portuguese	anarcho	australian	kentucky	empires	electrical	cryptography	light	neolithic
superhero	districts divisions	cornwall exeter	language dialects	indigenous minorities	netherlands amsterdam	paulo rio	capitalists economists	sydney melbourne	mississippi alabama	emperors rulers	circuits current	cipher	wavelengths laser	bc
Axis 105	Axis 106	Axis 107	Axis 108	Axis 109	Axis 110	no Axis 111	Axis 112	Axis 113	Axis 114	Axis 115	Axis 116	ciphers Axis 117	Axis 118	Axis 119
italy	buddha	dog	award	computation	martial	worn	episode	frac	morphisms	audio	nazi	si	disorder	combustion
norway	buddhism	hound	awards	artificial	judo	wearing	aired	cos	homomorphism	lossy	holocaust	units	mental	diesel
netherlands germany	mahayana buddhist	dogs breed	prize awarded	turing computational	aikido karate	clothing wear	show tv	equation euler	hydrogen wavelengths	compression mpeg	nazis camps	metre kilogram	disorders symptoms	turbine engine
Axis 120	Axis 121	Axis 122	Axis 123	Axis 124	Axis 125	Axis 126	Axis 127	Axis 128	Axis 129	Axis 130	Axis 131	Axis 132	Axis 133	Axis 134
winters	families	hip	newspaper	israeli	algae	pointer	poetry	ball	schools	exports	iv	telephone	fourth	prix
summers	family	hop	daily	palestinian	bacteria	return	verse	scrimmage	school	imports	iii	phone	third	grand
temperatures precipitation	older household	dj rap	weekly newspapers	palestinians israel	fungi mitochondria	string pointers	poem poems	goal foul	secondary education	textiles gwh	vii vi	mobile cellular	fifth sixth	schumacher race
Axis 135	Axis 136	Axis 137	Axis 138	Axis 139	Axis 140	Axis 141	Axis 142	Axis 143	Axis 144	Axis 145	Axis 146	Axis 147	Axis 148	Axis 149
manuscripts	disk	san	horse	frankish	import	treaty	colspan	card	р	donald	studied	medicine	olympics	saint
translation translations	floppy disks	francisco california	horses riding	franks saxon	duplicate info	signed agreement	align center	cards dealer	j q	duck scrooge	born he	medical doctors	olympic athletes	st petersburg
testament	drives	diego	breed	saxons	no	signing	motto	betting	r	mcduck	career	care	sport	patron
Axis 150	Axis 151	Axis 152	Axis 153	Axis 154	Axis 155	Axis 156	Axis 157	Axis 158	Axis 159	Axis 160	Axis 161	Axis 162	Axis 163	Axis 164
nuclear	century		0											
		inducted	finns	york	list	claim	intelligence	dance	theatre	evolution	km	ten	corpus	iran
bomb	th	treasure	soviets	new	topics	claims	agency	dances	stage	evolutionary	harbors	hundred	vitamin	iranian
bombs fission														
bombs	th twentieth	treasure apocalypse	soviets col	new ny	topics lists	claims claimed	agency	dances dancing	stage broadway	evolutionary darwin	harbors total	hundred months	vitamin esp	iranian iraq
bombs fission Axis 165 desertification	th twentieth nineteenth Axis 166 axis	treasure apocalypse fairy Axis 167 thank	soviets col ir <u>Axis 168</u> license	new ny bronx Axis 169 female	topics lists see Axis 170 class	claims claimed evidence Axis 171 monster	agency cia fbi <u>Axis 172</u> hell	dances dancing dancers <u>Axis 173</u> basque	stage broadway theater Axis 174 park	evolutionary darwin selection <u>Axis 175</u> test	harbors total unpaved Axis 176 article	hundred months thousand Axis 177 arthur	vitamin esp mutant <u>Axis 178</u> question	iranian iraq persian Axis 179 bah
bombs fission Axis 165 desertification environment	th twentieth nineteenth Axis 166 axis perpendicular	treasure apocalypse fairy <u>Axis 167</u> thank hello	soviets col ir Axis 168 license copyleft	new ny bronx Axis 169 female male	topics lists see Axis 170 class classes	claims claimed evidence Axis 171 monster creature	agency cia fbi Axis 172 hell heaven	dances dancers Axis 173 basque spain	stage broadway theater Axis 174 park parks	evolutionary darwin selection <u>Axis 175</u> test tests	harbors total unpaved Axis 176 article main	hundred months thousand Axis 177 arthur merlin	vitamin esp mutant <u>Axis 178</u> question debate	iranian iraq persian Axis 179 bah II
bombs fission Axis 165 desertification	th twentieth nineteenth Axis 166 axis	treasure apocalypse fairy Axis 167 thank	soviets col ir <u>Axis 168</u> license	new ny bronx Axis 169 female	topics lists see Axis 170 class	claims claimed evidence Axis 171 monster	agency cia fbi <u>Axis 172</u> hell	dances dancing dancers <u>Axis 173</u> basque	stage broadway theater Axis 174 park	evolutionary darwin selection <u>Axis 175</u> test	harbors total unpaved Axis 176 article	hundred months thousand Axis 177 arthur	vitamin esp mutant <u>Axis 178</u> question	iranian iraq persian Axis 179 bah
bombs fission Axis 165 desertification environment flooding	th twentieth nineteenth Axis 166 axis perpendicular rotation	treasure apocalypse fairy Axis 167 thank hello please	soviets col ir Axis 168 license copyleft gpl	new ny bronx Axis 169 female age	topics lists see Axis 170 class classes middle	claims claimed evidence Axis 171 monster creature loch	agency cia fbi Axis 172 hell heaven paradise	dances dancing dancers Axis 173 basque spain aragon	stage broadway theater Axis 174 park parks national	evolutionary darwin selection Axis 175 test tests tests tests	harbors total unpaved Axis 176 article main disambiguation	hundred months thousand Axis 177 arthur merlin grail	vitamin esp mutant Axis 178 question debate questions	iranian iraq persian Axis 179 bah Il mason
bombs fission Axis 165 desertification environment flooding environmental Axis 180 jedi	th twentieth nineteenth Axis 166 axis perpendicular rotation direction Axis 181 coup	treasure apocalypse fairy Axis 167 thank hello please good Axis 182 ethiopia	soviets col ir Axis 168 license copyleft gpl licenses Axis 183 turkish	new ny bronx Axis 169 female age infant	topics lists see Axis 170 class classes middle working Axis 185 buried	claims claimed evidence Axis 171 monster creature loch creatures Axis 186 reading	agency cia fbi Axis 172 hell heaven paradise eden	dances dancing dancers Axis 173 basque spain aragon eta Axis 188 less	stage broadway theater Axis 174 park parks national wildlife	evolutionary darwin selection Axis 175 test tests testing cricket Axis 190 diamond	harbors total unpaved Axis 176 article main disambiguation discusses Axis 191 melville	hundred months thousand Axis 177 arthur merlin grail knights	vitamin esp mutant Axis 178 question debate questions whether Axis 193 rights	iranian iraq persian Axis 179 bah Il mason meher Axis 194 freemasonry
bombs fission Axis 165 desertification environmental environmental Axis 180 jedi luke	th twentieth nineteenth Axis 166 axis perpendicular rotation direction Axis 181 coup overthrow	treasure apocalypse fairy Axis 167 thank hello please good Axis 182 ethiopia ethiopia	soviets col ir Axis 168 license copyleft gpl licenses Axis 183 turkish turkey	new ny bronx Axis 169 female age infant Axis 184 g e	topics lists see Axis 170 class classes middle working Axis 185 buried burial	claims claimed evidence Axis 171 monster creature loch creatures Axis 186 reading further	agency cia fbi Axis 172 hell heaven paradise eden Axis 187 cort georges	dances dancing dancers Axis 173 basque spain aragon eta Axis 188 less than	stage broadway theater Axis 174 park parks national wildlife Axis 189 taggart pg	evolutionary darwin selection Axis 175 test tests testing cricket Axis 190 diamond diamonds	harbors total unpaved Axis 176 article main discusses Axis 191 melville fuller	hundred months thousand Axis 177 arthur merlin grail knights Axis 192 guant namo	vitamin esp mutant Axis 178 question debate questions whether Axis 193 rights legislation	iranian iraq persian Axis 179 bah II mason meher Axis 194 freemasonry masonic
bombs fission Axis 165 desertification environment flooding environmental Axis 180 jedi	th twentieth nineteenth Axis 166 axis perpendicular rotation direction Axis 181 coup	treasure apocalypse fairy Axis 167 thank hello please good Axis 182 ethiopia	soviets col ir Axis 168 license copyleft gpl licenses Axis 183 turkish	new ny bronx Axis 169 female male age infant Axis 184 g	topics lists see Axis 170 class classes middle working Axis 185 buried	claims claimed evidence Axis 171 monster creature loch creatures Axis 186 reading	agency cia fbi Axis 172 hell heaven paradise eden Axis 187 cort	dances dancing dancers Axis 173 basque spain aragon eta Axis 188 less	stage broadway theater Axis 174 park parks national wildlife Axis 189 taggart	evolutionary darwin selection Axis 175 test tests testing cricket Axis 190 diamond	harbors total unpaved Axis 176 article main disambiguation discusses Axis 191 melville	hundred months thousand Axis 177 arthur merlin grail knights Axis 192 guant	vitamin esp mutant Axis 178 question debate questions whether Axis 193 rights	iranian iraq persian Axis 179 bah Il mason meher Axis 194 freemasonry
bombs fission Axis 165 desertification environment flooding environmental Axis 180 jedi luke knight	th twentieth nineteenth Axis 166 axis perpendicular rotation direction Axis 181 coup overthrow tat	treasure apocalypse fairy Axis 167 thank hello please good Axis 182 ethiopia ethiopia	soviets col ir Axis 168 license copyleft gpl licenses Axis 183 turkish turkey istanbul	new ny bronx Axis 169 female male age infant Axis 184 g e icao	topics lists see class classs classs middle working Axis 185 buried burial cemetery	claims claimed evidence Axis 171 monster creature loch creatures <u>Axis 186</u> reading further devised	agency cia fbi Axis 172 hell heaven paradise eden Axis 187 cort georges philip	dances dancing dancers Axis 173 basque spain aragon eta Axis 188 less than more	stage broadway theater Axis 174 park parks national wildlife Axis 189 taggart pg estonian	evolutionary darwin selection Axis 175 test tests testing cricket Axis 190 diamond diamonds stones	harbors total unpaved Axis 176 article main disambiguation discusses Axis 191 melville fuller apr	hundred months thousand Axis 177 arthur merlin grail knights Axis 192 guant namo consistency	vitamin esp mutant Axis 178 question debate questions whether Axis 193 rights legislation act	iranian iraq persian Axis 179 bah II mason meher Axis 194 freemasonry masonic dawn
bombs fission Axis 165 desertification environment flooding environmental Axis 180 jedi luke knight wars Axis 195 cretaceous	h twentieth nineteenth Axis 166 axis perpendicular rotation direction Axis 181 coup overthrow tat junta Axis 196 indonesian	treasure apocalypse fairy Axis 167 thank hello please good Axis 182 ethiopia ethiopian eritrea kate Axis 197 population	soviets col ir Axis 168 license copyleft gpl licenses Axis 183 turkish turkey istanbul cypriot Axis 198 million	new ny bronx Axis 169 female male age infant Axis 184 g e icao fao Axis 199 derivative	topics lists see Axis 170 class classes middle working Axis 185 buriad burial cemetery grave Axis 200 columbus	claims claimed evidence Axis 171 monster creature loch creatures Axis 186 reading further devised steadily Axis 201 actor	agency cia fbi Axis 172 hell heaven paradise eden Axis 187 cort georges philip counts Axis 202 cross	dances dancing dancers Axis 173 basque spain aragon eta Axis 188 less than more much Axis 203 centered	stage broadway theater Axis 174 park parks national wildlife Axis 189 taggart Pg estonian finnish Axis 204 maps	evolutionary darwin selection Axis 175 test tests tests tests cricket Axis 190 diamond diamonds stones gem Axis 205 names	harbors total unpaved Axis 176 article main disambiguation discusses Axis 191 melville fuller apr taste Axis 206 rolling	hundred months thousand Axis 177 arthur merlin grail knights Axis 192 guant namo consistency alter Axis 207 chemistry	vitamin esp mutant Axis 178 question debate questions whether Axis 193 rights legislation act laws Axis 208 short	iranian iraq persian Axis 179 bah Il mason meher Axis 194 freemasonry masonic dawn lodge Axis 209 code
bombs fission Axis 165 desertification environment flooding environmental Axis 180 jedi luke knight wars Axis 195 cretaceous geologic	th twentieth mineteenth Axis 166 axis perpendicular rotation direction Axis 181 coup overthrow tat junta Axis 196 indonesian malaysia	treasure apocalypse fairy Axis 167 thank hello please good Axis 182 ethiopia eritrea kate Axis 197 population median	soviets col ir Axis 168 license copyleft gpl licenses Axis 183 turkish turkey istanbul cypriot Axis 198 million estimated	new ny byonx Axis 169 female male age infant Axis 184 g e icao fao Axis 199 derivative manchester	topics lists see Axis 170 class classes middle working Axis 185 buried burial cemetery grave Axis 200 columbus taxi	claims claimed evidence Axis 171 monster creature loch creatures Axis 186 reading further devised steadily Axis 201 actor squadron	agency cia fbi Axis 172 hell heaven paradise eden Axis 187 cort georges philip counts Axis 202 cross crescent	dances dancing dancers Axis 173 basque spain aragon eta Axis 188 less than more much Axis 203 centered eagles	stage broadway theater Axis 174 park parks national wildlife Axis 189 taggart pg estonian finnish Axis 204 map	evolutionary darwin selection Axis 175 test tests testing cricket Axis 190 diamond diamonds stones gem Axis 205 names various	harbors total umpaved Axis 176 article main disambiguation discusses Axis 191 melville fuller apr taste Axis 206 rolling adobe	hundred months thousand Axis 177 arthur merlin grail knights Axis 192 guant namo consistency alter Axis 207 chemistry alchemy	vitamin esp mutant Axis 178 question debate questions whether Axis 193 rights legislation act laws Axis 208 short long	iranian iraq persian Axis 179 bah Il mason meher Axis 194 freemasonry masonic dawn lodge Axis 209 code coalling
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bombs fission Axis 165 descritification environment flooding environment flooding environment flooding environment Axis 180 ied iuk knight wars Axis 195 cretacous geologic epoch extinction extinction iu interpol observer Axis 210 unesco iu interpol observer Axis 225 lord Axis 245 l	th tweatieth nineteenth Axis 106 axis perpendicular rotation direction Axis 181 coup overthrow tat junta Axis 186 Axis 210 calvinism laden malaysia malaysia malaysia malaysia malaysia malaysia malaysia malaysia malaysia malaysia direction axis 211 calvinism Laden Axis 221 Axis 226 pickford ceins turbulet pickford ceins turbulet pickford dataptation malaptation adaptation multi direction adaptation sones	treasure apocalypse fairy Axis 167 thank belo please ethiopian ethiopian ethiopian ethiopian ethiopian ethiopian ethiopian estimated Axis 122 k defunct needian estimated Axis 212 k defunct neutrality n Axis 222 k defunct neutrality n Axis 223 k defunct neutrality n Axis 225 k Axis 222 k Axis 222 k defunct neutrality n Axis 225 k usatement anything exception Axis 227 humanics statement conversation witches a Axis 222 k dayther anything exception conversation witches a anything conversation witches a anything conversation witches a anything conversation witches a anything conversation witches a anything conversation witches a anything conversation witches a anything conversation conversation conversation conversation conversation conversation conversation conver	soviets col ir Axis 168 license copyleft license licenses licenses Axis 183 urkish urkish urkish urkish urkish urkish urkish urkish urkish urkish urkish axis 183 Axis 213 z rich zwingli axis 213 z rich zwingli Axis 213 Axis 228 fatal provided arrows aspartame nerge Axis 273 dodo guilffrend punk megill	new ny bronx Axis 109 female male age infant Axis 184 g e icao fao Axis 184 g e correl derivative manchester resolutions pat Axis 214 tyler correll derivative manchester deri derivative manchester tyler correll Axis 214 tyler correll Axis 24 Axis 24 Axis 250 attending fate quad Axis 274 crusale crusale tending fate quad Axis 274 crusale crusale tending fate quad Axis 274 crusale derivative the correll derivative manchester the correll derivative manchester tyler correll derivative tyler correll derivative manchester tyler correll derivative manchester derivative tyler correll derivative manchester derivative tyler correll derivative tyler t	topics see Axis 170 class classes didle disses didle burial cemetery arave Axis 185 burial cemetery arave Axis 210 columbus taxi benson concern taxi benson concern didl devastati tex marsh extermination difd Axis 215 tex extermination difd Axis 215 tex extermination difd Axis 215 tex extermination difd Axis 215 tex extermination difd extermination difd extermination difd extermination devastati exs extermination devastati exs for devastati assertion devastati exs for devastati for	claims claims evidence evidence axis 171 monster creatures loch reading further devised steadily actor syuadron actress syuadron actress syuadron actress syuadron actress syuadron actress syuadron actress syuadron actress actor frakkands boas Axis 216 frakkands boas d et hoc ad est Axis 216 fakkands boas et hoc ad est Axis 216 fakkands boas et hoc ad est Axis 216 fakkands boas et hoc ad est boas fakkands boas et hoc ad est boas fakkands boas et hoc ad est boas fakkands boas et hoc ad est boas fakkands boas fakkands boas et hoc ad est boas fakkands boas fakkands boas fakkands boas fakkands boas fakkands boas fakkands boas fakkands fakkands boas fakkands fakkands fakkands fakkands boas fakkands fak	agency cia fbi Axis 172 hell heaven paradise eden Axis 187 cort georges philip counts Axis 202 cross crossent crescent icre dressing Axis 217 esperanto ido Axis 217 esperanto ido accesent sentences hell sigma actor anto anto anto anto anto anto anto anto	dances dancers dancers Axis 173 basque spain aragon eta Axis 188 less than more eque serial eventual eventual eventual eventual eventual eventual eventual eventual eventual tended dave ergles serial eventual eventual eventual tended dave ergles serial eventual eventual eventual tended dave ergles serial eventual eventual eventual tended dave dave axis 218 tended dave dave tended tended dave tended dave tended ten	stage broadway theater Axis 174 park parks national wildlife Axis 189 taggart P8 estonian finnish Axis 204 Axis 204 Axis 219 foo slight needle folklore Axis 219 foo slight needle folklore Axis 219 foo slight needle folklore Axis 240 Axis 240 Axis 240 Axis 240 bull op distinct Axis 240 metaphor petication diver ignore agaan Axis 279 constructs hierarchy synod ois	evolutionary darwin selection Axis 175 test tests testing cricket Axis 200 cleese monty various include these Axis 220 cleese monty various cleese various cleese various cleese various cleese various cleese various cleese various cleese various cleese various cleese various cleese various cleese various cleese various cleese various cleese various cleese various cleese various cleese various cleese various various cleese various various cleese various various cleese various	harbors total unpaved Axis 176 article main discusses Axis 191 melville fuller apr taste Axis 206 rolling adobe chuck kasparov Axis 221 certificate employee engineer laplace Axis 221 certificate employee engineer laplace Axis 236 voting plurality voter voter voter voter striking Axis 251 ultimate reduction discover striking Axis 266 glider trademark purity few Axis 281 cryonics ec euthanasia freezing feve Axis 296	hundred housand months thousand Axis 177 arthur meriin grail knights Axis 192 guant consistency alter Axis 207 chemistry alchemy ubes orientation Axis 220 oed hungry threats Axis 220 oed hangry threats Axis 220 oed hangry threats Axis 220 oed hangry threats Axis 220 oed hangry threats Axis 220 oed hangry threats Axis 220 joins comparatively fungi Axis 227 textbook fungi consol guant cosmology li cosmological Axis 227	vitamin esp mutant Axis 178 question debate questions whether Axis 193 rights legislation act legislation act legislation act act act act act act act act act act	iranian jara persian Axis 179 bah Man Man Axis 194 freemasonry masonic dawn masonic dawn code code code code code code code code

Table 6: The top 4 words with the largest component values along all axes of ICA-transformed word embedding used in our experiments. Axes are sorted in descending order of skewness.

organization u international it organizations in	Axis 210	$E(S_2^2S_{114}^2) =$ Axis 2		$E(S_{10}^2S_{125}^2) = 2.$							
international it organizations in			Axis 114	Axis 10	Axis 125	$E(S_{58}^2 S_{70}^2) = 2$ Axis 58	Axis 70	$E(S_{14}^2 S_{113}^2) = 2$ Axis 14	Axis 113	$E(S_{63}^2S_{184}^2) =$ Axis 63	Axis 184
organizations in	inesco	acid	morphisms	dna	algae	imperfect	accusative	topological	frac	organization	g
	tu	hydrogen	homomorphism	proteins	bacteria	perfect	nouns	isomorphic	cos	international	e
	nterpol	acids	hydrogen	rna	fungi	future	genitive	banach	equation	organizations	icao
·	observer	oh	wavelengths	mrna	mitochondria	present	noun	topology	euler	interpol	fao
$E(S_2^2 S_{10}^2) = 2.32$	23	$E(S_{22}^2S_{59}^2) =$	2.247	$E(S_{26}^2S_{134}^2) = 2.$	233		2.228	$E(S_2^2 S_{53}^2) = 2.1$			2.158
Axis 2 A	Axis 10	Axis 22	Axis 59	Axis 26	Axis 134	Axis 14	Axis 114	Axis 2	Axis 53	Axis 16	Axis 52
	lna	instrument	concerto	cars	prix	topological	morphisms	acid	element	blood	infectious
	proteins	instruments	fugue	ford	grand	isomorphic	homomorphism	hydrogen	metals	organs	infection
	ma mrna	bass guitars	sonata bwy	car chassis	schumacher race	banach topology	hydrogen wavelengths	acids oh	elements uranium	liver kidney	disease infections
		0				1 05	e				
$E(S_{10}^2S_{114}^2) = 2.$ Axis 10 A	Axis 114	$E(S_{16}^2S_{118}^2) =$ Axis 16	= 2.124 Axis 118	$E(S_1^2 S_{121}^2) = 2.1$ Axis 1	Axis 121	$E(S_{44}^2S_{121}^2) =$ Axis 44	Axis 121	$E(S_{28}^2 S_{122}^2) = 2$ Axis 28	Axis 122	$E(S_{19}^2S_{55}^2) = 2$ Axis 19	Axis 55
	norphisms	blood			families		families				
	norphisms	organs	disorder mental	genus species	family	plants plant	family	album albums	hip hop	party parties	appointed minister
	iydrogen	liver	disorders	extinct	older	flowers	older	band	dj	democrats	cabinet
	wavelengths	kidney	symptoms	birds	household	flowering	household	songs	rap	democratic	appoints
	.060	· · ·	2.032	E(C2 C2) 9		$E(S_{27}^2S_{64}^2) = 1$		-	.991		1.987
	Axis 112	$E(S_6 S_{96}) = $ Axis 6	2.032 Axis 96	$E(S_{21}^2 S_{110}^2) = 2.$ Axis 21	028 Axis 110	$E(S_{27}S_{64}) = 1$ Axis 27	Axis 64	$E(S_{13}S_{168}) = 1$ Axis 13	Axis 168	$E(S_{51}^2S_{128}^2) =$ Axis 51	Axis 128
					martial		goddess		license		ball
	episode uired	el spanish	o portuguese	japanese japan	judo	greek greece	goddess	windows os	copyleft	coach quarterback	scrimmage
	show	nacional	paulo	tokyo	aikido	athens	deity	unix	gpl	defensive	goal
broadcast tr		jos	rio	emperor	karate	athenian	deities	linux	licenses	bengals	foul
$E(S_{12}^2S_{66}^2) = 1.9$	75	$E(S_4^2 S_{106}^2) =$	1.974	$E(S_{56}^2S_{136}^2) = 1.$	967	$E(S^2, S^2,) =$	1 966	${\rm E}(S_{15}^2S_{118}^2)=1$	959	$E(S_{10}^2S_{16}^2) = 1$	1 947
Axis 12 A	Axis 66	Axis 4	Axis 106	Axis 56	Axis 136	$\begin{array}{l} {\rm E}(S_{17}^2S_{114}^2) = \\ {\rm Axis} \ 17 \end{array}$	Axis 114	Axis 15	Axis 118	Axis 10	Axis 16
	udah	india	buddha	сри	disk	consonants	morphisms	drugs	disorder	dna	blood
	sraelites	indian	buddhism	microprocessor	floppy	vowels	homomorphism	drug	mental	proteins	organs
	/ahweh	nehru	mahayana	processor	disks	vowel	hydrogen	heroin	disorders	rna	liver
	elisha	hindu	buddhist	cpus	drives	consonant	wavelengths	lsd	symptoms	mrna	kidney
$E(S_0^2 S_{82}^2) = 1.92$	27	$E(S_{53}^2S_{150}^2) =$	= 1.915	$E(S_{80}^2S_{89}^2) = 1.9$	09	$E(S_5^2S_{59}^2) = 1.$	897	$E(S_{39}^2S_{51}^2) = 1.8$	885	$E(S_{10}^2S_{52}^2) = 1$	1.875
	Axis 82	Axis 53	Axis 150	Axis 80	Axis 89	Axis 5	Axis 59	Axis 39	Axis 51	Axis 10	Axis 52
dishes b	beer	element	nuclear	serbian	austria	und	concerto	pitcher	coach	dna	infectious
	beers	metals	bomb	serbs	belgium	der	fugue	sox	quarterback	proteins	infection
	ile	elements	bombs	serbia	luxembourg	die	sonata	baseman	defensive	rna	disease
	prewing	uranium	fission	croatia	germany	das	bwv	pitchers	bengals	mrna	infections
$E(S_{53}^2S_{86}^2) = 1.8$	372		= 1.871	$E(S_6^2S_{173}^2) = 1.8$	369	$E(S_8^2 S_{106}^2) = 1$	867		.861	$E(S_{85}^2S_{153}^2) =$	1.857
Axis 53 A	Axis 86	Axis 39	Axis 128	Axis 6	Axis 173	Axis 8	Axis 106	Axis 56	Axis 126	Axis 85	Axis 153
element n	ocks	pitcher	ball	el	basque	chinese	buddha	cpu	pointer	battle	finns
	olcanic/	SOX	scrimmage	spanish	spain	china	buddhism	microprocessor	return	battles	soviets
	granite	baseman	goal	nacional	aragon	beijing	mahayana	processor	string	defeat	col
	geologic	pitchers	foul	jos	eta	pinyin	buddhist	cpus	pointers	fought	ir
$E(S_{74}^2 S_{89}^2) = 1.8$		$E(S_{15}^2S_{16}^2) =$		$E(S_{83}^2S_{105}^2) = 1.$	832	$E(S_{17}^2S_{233}^2) =$		$E(S_{71}^2 S_{143}^2) = 1$.828	$E(S_{53}^2S_{114}^2) =$	
	Axis 89	Axis 15	Axis 16	Axis 83	Axis 105	Axis 17	Axis 233	Axis 71	Axis 143	Axis 53	Axis 114
	ustria	drugs	blood	wimbledon	italy	consonants	hong	game	card	element	morphisms
	elgium uvambourg	drug heroin	organs liver	open finalist	norway	vowels vowel	kong guidance	games	cards dealer	metals elements	homomorphism hydrogen
	uxembourg germany	lsd	liver kidney	quarter	netherlands germany	consonant	mine	gameplay multiplayer	betting	uranium	wavelengths
			-					$E(S_{35}^2S_{88}^2) = 1.7$	U		6
$E(S_{30}^2S_{132}^2) = 1.2$ Axis 30 A	.820 Axis 132	$E(S_{10}^2S_{160}^2) =$ Axis 10	= 1.811 Axis 160	$E(S_{86}^2S_{195}^2) = 1.$ Axis 86	809 Axis 195	$E(S_{101}^2S_{103}^2) =$ Axis 101	1.800 Axis 103	$E(S_{35}^2 S_{88}^2) = 1.5$ Axis 35	798 Axis 88	$E(S_4^2S_{89}^2) = 1$ Axis 4	.794 Axis 89
										india	
	elephone ohone	dna proteins	evolution evolutionary	rocks volcanic	cretaceous geologic	voltage electrical	wavelength light	aircraft flight	force army	indian	austria belgium
	nobile	rna	darwin	granite	epoch	circuits	wavelengths	boeing	military	nehru	luxembourg
	ellular	mrna	selection	geologic	extinction	current	laser	airlines	regiment	hindu	germany
broadcast c				$E(S_{32}^2S_{129}^2) = 1.$					-		
-		$E(S_{15}^2S_{44}^2) =$	1.793 Axis 44	$E(S_{32}S_{129}) = 1.$ Axis 32	793 Axis 129	$E(S_{20}^2S_{46}^2) = 1$ Axis 20	Axis 46	$E(S_3^2S_{124}^2) = 1.7$ Axis 3	Axis 124	$E(S_{26}^2S_{119}^2) =$ Axis 26	1.785 Axis 119
$E(S_{107}^2S_{138}^2) = 1$	Axis 138	Axis 15	· •/•40 TT								
$\frac{\mathrm{E}(S_{107}^2S_{138}^2)=1}{\mathrm{Axis}\;107}$	Axis 138			university	schools	stars	spacecraft	9]	israeli	-	combustion
$\frac{\mathrm{E}(S^2_{107}S^2_{138}) = 1}{\frac{\mathrm{Axis}\;107}{\mathrm{dog}}} $	Axis 138 norse	drugs	plants	university college	schools school	stars constellation	spacecraft nasa	al ibn	israeli palestinian	cars	combustion diesel
$\frac{\mathrm{E}(S_{107}^2S_{138}^2) = 1}{\mathrm{Axis \ 107}} \frac{1}{\mathrm{Axis \ 107}} \frac{1}{Axis \ 107$	Axis 138			university college technology	schools school secondary	stars constellation star	·		israeli palestinian palestinians	-	combustion diesel turbine

Table 7: Complementary experimental results to Table 1. The top 60 pairs with the highest $E(S_i^2 S_j^2)$ values are presented. For each component, the top 4 words with the largest component values are listed.

$E(S_2^2S_{10}^2) = 2.323$ Axis 2	Axis 10	$\begin{array}{l} {\rm E}(S_2^2S_{119}^2) = 1.78\\ {\rm Axis}\; 2 \end{array}$	55 Axis 119	$\begin{array}{l} {\rm E}(S_{132}^2S_{30}^2)=1\\ {\rm Axis}\; 132 \end{array}$	820 Axis 30	$\begin{array}{l} {\rm E}(S^2_{132}S^2_{73})=1\\ {\rm Axis}\ 132 \end{array}$.693 Axis 73	$\begin{split} \mathbf{E}(S^2_{132}S^2_{62}) &= 1.\\ \mathbf{Axis} \ 132 \end{split}$	632 Axis 62	$\begin{array}{l} {\rm E}(S^2_{136}S^2_{56})=1\\ {\rm Axis}\; 136 \end{array}$.967 Axis 56
acid	dna	acid	combustion	telephone	stations	telephone	ip	telephone	company	disk	cpu
hydrogen acids	proteins rna	hydrogen acids	diesel turbine	phone mobile	fm radio	phone mobile	tcp protocols	phone mobile	corporation companies	floppy disks	microprocessor processor
oh	mrna	oh	engine	cellular	broadcast	cellular	protocol	cellular	shareholders	drives	cpus
wk	$S_{k,2}^2 S_{k,10}^2$	wk	$S_{k,2}^2 S_{k,119}^2$	$\overline{w_k}$	$S_{k,132}^2 S_{k,30}^2$	$\overline{w_k}$	$S_{k,132}^2 S_{k,73}^2$	w_k	$S_{k,132}^2 S_{k,62}^2$	$\overline{w_k}$	$S_{k,136}^2 S_{k,56}^2$
ribose	3755.7	pyrolysis	2794.4	digitalized	4726.8	multipoint	2062.7	esat	3145.5	sata	3427.5
deoxyribose	2963.9	syngas	2056.9	arabsat	4657.2	pstn	1996.9	telecoms	2547.9	udma	2519.7
phosphodiester biosynthesis	2850.2 2510.1	gasification butane	1783.5 1761.2	radiotelephone landlines	4453.9 3522.1	wimax xdsl	1873.8 1491.2	nynex gnc	2155.9 1810.0	backplanes nexgen	2008.9 1947.7
methyltransferase	2482.9	dehydrogenation	1623.0	intersputnik	3053.5	svcs	1361.2	haitel	1657.3	megabytes	1890.1
pyrimidine	2399.6	tert	1230.2	telex	2722.4	isdn	1235.8	openreach	1529.2	eisa	1859.5
$E(S_{10}^2S_{16}^2) = 1.94$		$E(S_{10}^2 S_{160}^2) = 1.8$		$E(S_{140}^2 S_{56}^2) = 1$ A via 140		$E(S_{13}^2 S_{56}^2) = 1.5$		$E(S_{13}^2S_{168}^2) = 1.$		$E(S_{13}^2S_{73}^2) = 1.$	740 Axis 73
Axis 10 dna	Axis 16 blood	Axis 10 dna	Axis 160 evolution	Axis 140 import	Axis 56 cpu	Axis 13 windows	Axis 56	Axis 13 windows	Axis 168 license	Axis 13 windows	
proteins	organs	proteins	evolutionary	duplicate	microprocessor	os	cpu microprocessor	os	copyleft	os	ip tcp
rna	liver	rna	darwin	info	processor	unix	processor	unix	gpl	unix	protocols
mrna	kidney	mrna	selection	no	cpus	linux	cpus	linux	licenses	linux	protocol
<u>w_k</u>	${\bf S}_{k,10}^2 {\bf S}_{k,16}^2$	<u>w_k</u>	$\mathbf{S}_{k,10}^2 \mathbf{S}_{k,160}^2$	w_k	$S_{k,140}^2 S_{k,56}^2$	wk	$S_{k,13}^2 S_{k,56}^2$	wk	${\bf S}_{k,13}^2 {\bf S}_{k,168}^2$	wk	$S_{k,13}^2 S_{k,73}^2$
adenylate effectors	2079.8 1842.5	utr reticulum	2381.5 1942.0	superpipelined strongarm	5652.9 3220.2	xcode powerpc	2609.7 2046.7	qpl lgpl	5678.2 4519.9	netware netbios	1799.2 1543.2
antisense	1639.9	genomic	1668.6	specrate	2470.5	itanium	1500.1	trolltech	3588.4	imap	1414.0
cyclase	1638.9	homozygous	1599.1	specbaserate	1524.5	glibc	1355.1	gpl	3325.2	glut	1239.0
myosin axons	1201.8 1144.2	cleaved tubulin	1181.0 1152.4	insubstantial eisa	1387.8 1027.8	irix efi	1177.1 1161.1	gnu bsd	2826.1 2822.7	wfw dhcpv	1179.9 1115.5
$E(S_{15}^2S_{118}^2) = 1.95$		$E(S_{15}^2S_{44}^2) = 1.79$		$E(S_{16}^2S_{248}^2) = 1$		$E(S_{16}^2S_{147}^2) = 1$		$E(S_{16}^2S_{72}^2) = 1.6$		$E(S_{16}^2S_{52}^2) = 2.$	
Axis 15	Axis 118	Axis 15	Axis 44	Axis 16 Axis 16	Axis 248	Axis 16	Axis 147	Axis 16	Axis 72	Axis 16	Axis 52
drugs	disorder	drugs	plants	blood	increase	blood	medicine	blood	sexual	blood	infectious
drug	mental	drug	plant	organs liver	increased	organs	medical	organs	sex	organs	infection
heroin Isd	disorders symptoms	heroin Isd	flowers flowering	kidney	increasing increases	liver kidney	doctors care	liver kidney	homosexual heterosexual	liver kidney	disease infections
w_k	$S_{k,15}^2 S_{k,118}^2$	wk	$S_{k,15}^2 S_{k,44}^2$	w _k	$S_{k,16}^2 S_{k,248}^2$	w _k	$S_{k,16}^2 S_{k,147}^2$	wk	$S_{k,16}^2 S_{k,72}^2$	w _k	$S_{k,16}^2 S_{k,52}^2$
adhd	3505.8	peyote	3197.5	esophagus	2274.6	aortic	1726.9	erectile	2001.5	abscess	1932.6
anticonvulsants	3047.9	purpurea	2926.6	lobes	1462.4	brainstem	1537.1	dildo	1788.8	multifocal	1440.2
sertraline	2374.6 1604.8	meo	2878.6 2397.0	cava	1360.8	endoscopy laparoscopic	1533.7 1509.4	clitoral	1481.5	hemorrhagic	1239.3
lorazepam anticonvulsant		deliriants diplopterys		ligamentum	1024.8	Taparoscopic		deferens	1432.6	esophagitis	1187.4
anticonvuisant	1487.1	alpiopterys	2395.1	transversal	1011.2	angioplasty	1447.4	rectal	1352.0	efferent	1160.5
somnolence	1487.1	cabrerana	2395.1 2237.7	transversal vena	1011.2 1005.6	angioplasty cardiology		rectal urogenital	1352.0 1344.7		1160.5 1143.5
	1426.1		2237.7		1005.6		1447.4 1433.3		1344.7	efferent	1143.5
$\frac{\mathrm{Somnolence}}{\mathrm{E}(S_{16}^2S_{118}^2)=2.12}$ $\frac{\mathrm{Axis}\ 16}{\mathrm{blood}}$	1426.1 24 <u>Axis 118</u> disorder	$\frac{\text{cabrerana}}{\text{E}(S_{30}^2S_{112}^2) = 2.0}$ $\frac{\text{Axis 30}}{\text{stations}}$	2237.7 060 <u>Axis 112</u> episode	$\begin{tabular}{l} vena \\ \hline E(S^2_{30}S^2_{123}) = 1 \\ \hline Axis \ 30 \\ \hline stations \end{tabular}$	1005.6 570 <u>Axis 123</u> newspaper	$\frac{\text{cardiology}}{\text{E}(S_{36}^2S_{50}^2) = 1.6}$ $\frac{\text{Axis 36}}{\text{http}}$	1447.4 1433.3 688 <u>Axis 50</u> site	$\begin{tabular}{l} \hline $\mathbf{E}(S^2_{36}S^2_{73})=1.4$\\ \hline $\mathbf{Axis\ 36}$\\ \hline \mathbf{htp} \end{tabular}$	1344.7 19 <u>Axis 73</u> ip	$\begin{tabular}{l} efferent \\ mitral \end{tabular} \\ \hline E(S^2_{168}S^2_{193}) = \\ \hline \\ \hline Axis \ 168 \\ \hline \\ $	1143.5 1.495 <u>Axis 193</u> rights
$\frac{\mathrm{E}(S_{16}^2S_{118}^2)=2.12}{\mathrm{Axis}\;16}$ blood organs	1426.1 24 Axis 118 disorder mental	cabrerana $E(S_{30}^2S_{112}^2) = 2.0$ Axis 30 stations fm	2237.7 060 Axis 112 episode aired	$\begin{tabular}{l} vena \\ \hline E(S_{30}^2S_{123}^2) = 1 \\ \hline Axis 30 \\ \hline stations \\ fm \end{tabular}$	570 Axis 123 newspaper daily	$\begin{tabular}{l} cardiology \\ \hline E(S^2_{36}S^2_{50}) = 1.6 \\ \hline Axis 36 \\ \hline http \\ www \end{tabular}$	1447.4 1433.3 388 <u>Axis 50</u> site website	$\begin{tabular}{l} $$ urogenital $$ E(S_{36}^2S_{73}^2) = 1.4$ $$ $$ $$ Axis 36$ $$ $$ $$ $$ http $$ $$ $$ www $$ $$ $$ $$ $$ $$ $$ $$ $$$	1344.7 19 Axis 73 ip tcp	$\label{efferent} \begin{array}{c} \text{efferent} \\ \text{mitral} \\ \hline E(S^2_{168}S^2_{193}) = \\ \hline Axis \ 168 \\ \hline \\ \hline \\ \text{license} \\ \text{copyleft} \\ \end{array}$	1143.5 1.495 Axis 193 rights legislation
$\frac{\mathrm{Somnolence}}{\mathrm{E}(S_{16}^2S_{118}^2)=2.12}$ $\frac{\mathrm{Axis}\ 16}{\mathrm{blood}}$	1426.1 24 <u>Axis 118</u> disorder	$\frac{\text{cabrerana}}{\text{E}(S_{30}^2S_{112}^2) = 2.0}$ $\frac{\text{Axis 30}}{\text{stations}}$	2237.7 060 <u>Axis 112</u> episode	$\begin{tabular}{l} vena \\ \hline E(S^2_{30}S^2_{123}) = 1 \\ \hline Axis \ 30 \\ \hline stations \end{tabular}$	1005.6 570 <u>Axis 123</u> newspaper	$\frac{\text{cardiology}}{\text{E}(S_{36}^2S_{50}^2) = 1.6}$ $\frac{\text{Axis 36}}{\text{http}}$	1447.4 1433.3 688 <u>Axis 50</u> site	$\begin{tabular}{l} \hline $\mathbf{E}(S^2_{36}S^2_{73})=1.4$\\ \hline $\mathbf{Axis\ 36}$\\ \hline \mathbf{htp} \end{tabular}$	1344.7 19 <u>Axis 73</u> ip	$\begin{tabular}{l} efferent \\ mitral \\ \hline E(S^2_{168}S^2_{193}) = \\ \hline Axis \ 168 \\ \hline license \\ \hline \end{tabular}$	1143.5 1.495 <u>Axis 193</u> rights
$\frac{\text{sommolence}}{\text{E}(S_{16}^2S_{118}^2)=2.12}$ $\frac{\text{Axis 16}}{\text{blood}}$ organs liver	24 Axis 118 disorder mental disorders	cabrerana $E(S_{30}^2S_{112}^2) = 2.0$ Axis 30 stations fm radio	2237.7 060 Axis 112 episode aired show	$\begin{tabular}{l} vena \\ \hline E(S^2_{30}S^2_{123}) = 1 \\ \hline Axis 30 \\ \hline stations \\ fm \\ radio \end{tabular}$	1005.6 570 Axis 123 newspaper daily weekly	$\label{eq:cardiology} \begin{split} & \operatorname{E}(S^2_{36}S^2_{50}) = 1.6\\ & \operatorname{Axis} 36\\ & & \\ $	1447.4 1433.3 388 Axis 50 site website forum	$\begin{tabular}{l} $$ urogenital $$ E(S_{36}^2S_{73}^2) = 1.4$ $$ Axis 36$ $$ $$ http $$ $$ www $$ $$ htm $$ $$ $$ $$ htm $$ $$ $$ $$ $$ $$ $$ $$ $$ $$ $$ $$ $$$	1344.7 19 Axis 73 ip tcp protocols	$\label{eq:constraint} \begin{array}{c} \text{efferent} \\ \text{mitral} \\ \hline E(S^2_{168}S^2_{193}) = \\ \hline Axis \ 168 \\ \hline \\ \hline \text{license} \\ \text{copyleft} \\ \text{gpl} \end{array}$	1143.5 1.495 Axis 193 rights legislation act
$\frac{\text{somnolence}}{\text{E}(S_{16}^2S_{118}^2) = 2.12}$ $\frac{\text{Axis}(S_{116}^2)}{\text{blood}} = 2.12$ $\frac{\text{blood}}{\text{organs}}$ liver kidney	$\begin{array}{r} 1426.1\\ \hline 24\\ \hline Axis 118\\ \hline disorder\\ mental\\ disorders\\ symptoms\\ \hline \mathbf{S}_{k,16}^2\mathbf{S}_{k,118}^2\\ \hline 2110.2\\ \end{array}$	cabrerana $E(S_{30}^2S_{112}^2) = 2.0$ Axis 30 stations fm radio broadcast	2237.7 060 Axis 112 episode aired show tv	$\begin{array}{c} \text{vena} \\ \hline \text{E}(S^2_{30}S^2_{123}) = 1 \\ \hline \text{Axis 30} \\ \hline \text{stations} \\ \hline \text{fm} \\ \hline \text{radio} \\ \hline \text{broadcast} \\ \end{array}$	1005.6 .570 Axis 123 newspaper daily weekly newspapers	$\begin{array}{c} {\rm cardiology} \\ {\rm E}(S^2_{36}S^2_{50}) = 1.6 \\ {\rm Axis\ 36} \\ \\ {\rm http} \\ {\rm www} \\ {\rm htm} \\ {\rm htm} \\ {\rm htm} \\ \\ {\rm htm} \\ \end{array}$	1447.4 1433.3 388 Axis 50 site website forum photos	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	1344.7 Axis 73 ip tcp protocols protocol	$\begin{array}{c} \text{efferent} \\ \text{mitral} \\ E(S_{168}^2S_{193}^2) = \\ Axis 168 \\ \hline \\ \text{license} \\ \text{copyleft} \\ \text{gpl} \\ \text{licenses} \end{array}$	1143.5 1.495 Axis 193 rights legislation act laws
$\frac{\text{somnolence}}{\text{E}(S_{16}^2S_{118}^2) = 2.12}$ Axis 16 blood organs liver kidney $\frac{w_k}{\text{atrophy}}$ hemiparesis	$\frac{1426.1}{disorder} \\ \frac{Axis 118}{disorder} \\ \frac{disorders}{symptoms} \\ \frac{S_{k,16}^2 S_{k,118}^2}{2110.2} \\ \frac{2110.2}{1877.5} \\ \end{array}$	$\begin{array}{c} \mbox{cabrerana} \\ \mbox{E}(S_{30}^2S_{112}^2) = 2.0 \\ \mbox{Axis 30} \\ \mbox{stations} \\ \mbox{fm} \\ \mbox{radio} \\ \mbox{broadcast} \\ \hline \\ \mbox{w}_k \\ \mbox{rebroadcast} \\ \mbox{fsn} \\ \end{array}$	$\begin{array}{c} 2237.7\\ \hline 060\\ \hline Axis 112\\ \hline episode\\ aired\\ show\\ tv\\ \hline \\ \mathbf{S}_{k,30}^2 \mathbf{S}_{k,112}^2\\ \hline \\ 1729.4\\ 1635.4\\ \end{array}$	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	$\begin{array}{r} 1005.6\\ \hline \\ .570\\ Axis 123\\ \hline \\ newspaper\\ daily\\ weekly\\ newspapers\\ \hline \\ \mathbf{S}^{2}_{k,30}\mathbf{S}^{2}_{k,123}\\ \hline \\ \mathbf{S}^{2}_{k,30}\mathbf{S}^{2}_{k,123}\\ \hline \\ 1941.7\\ 1343.4 \end{array}$	$\begin{array}{c} \text{cardiology} \\ \text{E}(S_{36}^2S_{50}^2) = 1.6 \\ \text{Axis 36} \\ \hline \text{http} \\ \text{www} \\ \text{html} \\ \hline \\ \hline \\ \hline \\ w_k \\ \hline \\ \text{shtml} \\ \text{geocities} \\ \end{array}$	$\begin{array}{r} 1447.4 \\ 1433.3 \\ \hline \\ \hline \\ \frac{Axis 50}{site} \\ \\ website \\ forum \\ photos \\ \hline \\ \\ \hline \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ $	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	$\frac{1344.7}{19} \\ \frac{Axis 73}{ip} \\ tcp \\ protocols \\ protocol \\ \mathbf{S}_{k,36}^{2} \mathbf{S}_{k,73}^{2} \\ 1425.4 \\ 1352.4 \\ \end{array}$	$\begin{array}{c} \text{efferent}\\ \text{mitral}\\ \text{E}(S_{108}^2S_{193}^2) =\\ \hline\\ \text{Axis 168}\\ \hline\\ \text{copyleft}\\ \text{gpl}\\ \text{licenses}\\ \hline\\ \hline\\ w_k\\ \hline\\ \text{copyleft}\\ \text{magnatune}\\ \end{array}$	$\begin{array}{r} 1143.5\\ \hline 1.495\\ Axis 193\\ \hline rights\\ legislation\\ act\\ laws\\ \hline \mathbf{S}_{k,168}^2 \mathbf{S}_{k,193}^2\\ 1648.0\\ 1131.9\end{array}$
$\begin{tabular}{ c c c c c } \hline & sommolence \\ \hline & E(S^2_{16}S^2_{118}) = 2.12 \\ \hline & Axis 16 \\ \hline & blood \\ & organs \\ & liver \\ & kidney \\ \hline & w_k \\ \hline & atrophy \\ & hemiparesis \\ & axonal \\ \hline \end{tabular}$	$\begin{array}{r} 1426.1 \\ \hline \\ Axis 118 \\ \hline \\ disorder \\ mental \\ disorders \\ symptoms \\ \hline \\ \mathbf{S}_{k,10}^{2} \mathbf{S}_{k,118}^{2} \\ 2110.2 \\ 1877.5 \\ 1465.9 \end{array}$	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	$\begin{array}{r} 2237.7\\ \hline 060\\ \hline Axis 112\\ \hline episode\\ aired\\ show\\ tv\\ \hline \\ \mathbf{S}_{k,30}^2\mathbf{S}_{k,112}^2\\ \hline 1729.4\\ 1635.4\\ 1660.9\\ \hline \end{array}$	$\begin{array}{c} \text{vena} \\ \text{E}(S_{30}^2S_{123}^2) = 1 \\ \text{Axis 30} \\ \text{stations} \\ \text{fm} \\ \text{radio} \\ \text{broadcast} \\ \hline \\ \hline \\ \text{canwest} \\ \text{ctv} \\ \text{wqxr} \end{array}$	$\begin{array}{c} 1005.6\\ \hline .570\\ \hline Axis 123\\ \hline newspaper\\ daily\\ weekly\\ newspapers\\ \hline {\bf S}^2_{k,30} {\bf S}^2_{k,123}\\ \hline 1941.7 \end{array}$	$\begin{array}{c} {\rm cardiology} \\ {\rm E}(S_{36}^2S_{50}^2) = 1.6 \\ {\rm Axis36} \\ \\ {\rm http} \\ {\rm www} \\ {\rm htm} \\ {\rm html} \\ \\ \hline \\ \hline \\ \hline \\ \hline \\ \hline \\$	$\begin{array}{r} 1447.4 \\ 1433.3 \\ \hline \\ 888 \\ \hline \\ Axis 50 \\ \hline \\ site \\ website \\ forum \\ photos \\ \hline \\ \hline \\ S^2_{k,36}S^2_{k,50} \\ \hline \\ 1537.9 \\ \hline \end{array}$	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	$ \begin{array}{r} 1344.7 \\ \hline 4xis 73 \\ ip \\ tcp \\ protocols \\ protocol \\ \hline \mathbf{S}_{k,36}^{2} \mathbf{S}_{k,73}^{2} \\ 1425.4 \end{array} $	$\label{eq:starsest} \begin{split} & \begin{array}{l} \text{effcrent} \\ \text{mitral} \\ & \text{E}(S_{168}^2S_{193}^2) = \\ & \text{Axis} 168 \\ \hline & \text{license} \\ & \text{copyleft} \\ & \begin{array}{l} \text{gpl} \\ & \text{licenses} \\ \hline \\ & \begin{array}{l} w_k \\ \\ & \begin{array}{l} \text{copyleft} \\ & \text{magnatume} \\ & \text{rightsholder} \\ \end{array} \end{split}$	$\begin{array}{r} 1143.5\\ \hline 1.495\\ Axis 193\\ \hline rights\\ legislation\\ act\\ laws\\ \hline \mathbf{S}_{k,168}^{2}\mathbf{S}_{k,193}^{2}\\ \hline 1648.0 \end{array}$
$\begin{tabular}{ c c c c } \hline $smmolence$ \hline $E(S_{16}^2S_{118}^2)=2.1$: $Axis 16$ event $blood$ organs event $blood$ organs event $blood$ eve$	$\begin{array}{r} 1426.1\\ \hline \\ 24\\ \hline \\ Axis 118\\ \hline \\ disorder\\ mental\\ disorders\\ symptoms\\ \hline \\ \mathbf{S}^{2}_{k.16}\mathbf{S}^{2}_{k.118}\\ 2110.2\\ 1877.5\\ 1465.9\\ 1380.2\\ 1300.1\\ \end{array}$	$\begin{array}{c} \mbox{cabrerana} \\ \mbox{E}(S_{30}^2S_{112}^2) = 2.0 \\ \mbox{Axis 30} \\ \mbox{stations} \\ \mbox{fm} \\ \mbox{radios} \\ \mbox{broadcast} \\ \mbox{w}_k \\ \mbox{etvoadcast} \\ \mbox{fn} \\ \mbox{etvoadcast} \\ \mbox{fn} \\ \mbox{etvoadcast} \\ \mbox{fn} \\ \mbox{etvoadcast} \\ \mbox{fn} \\ \mbox{etvoadcast} \\ \$	$\begin{array}{r} 2237.7\\ \hline 060\\ \hline Axis 112\\ \hline episode\\ aired\\ show\\ tv\\ \hline {\bf S}^2_{k,30}{\bf S}^2_{k,112}\\ \hline 1729.4\\ 1635.4\\ 1600.9\\ 1534.6\\ 1441.3\\ \end{array}$	$\label{eq:static} \begin{array}{l} \mbox{vena} \\ \hline {\rm E}(S_{30}^2S_{123}^2) = 1 \\ \mbox{Axis 30} \\ \mbox{stations} \\ \mbox{fm} \\ \mbox{radio} \\ \mbox{broadcast} \\ \hline \hline \\ \mbox{canwest} \\ \mbox{ctv} \\ \mbox{superstation} \\ \mbox{superstation} \\ \mbox{wanbao} \end{array}$	$\begin{array}{r} 1005.6\\ \hline \\ 570\\ Axis 123\\ \hline \\ newspaper\\ weekly\\ newspapers\\ \hline \\ \mathbf{S}_{k,30}^2\mathbf{S}_{k,23}\\ 1941.7\\ 1343.4\\ 1276.0\\ 1144.2\\ 1116.1\\ \end{array}$	$\begin{array}{c} \mbox{cardiology} \\ \hline E(S^2_{36}S^2_{50}) = 1.0 \\ \mbox{Axis } 36 \\ \hline \mbox{htm} \\ \mbox{www} \\ \mbox{htm} \\ \mbox{htm} \\ \mbox{multi} \\ \hline \mbox{shtml} \\ \mbox{geocities} \\ \mbox{jeancocteau} \\ \mbox{lfc} \\ \mbox{uchicago} \\ \end{array}$	$\begin{array}{r} 1447.4\\1433.3\\\hline\\ site\\website\\forum\\photos\\ \hline {\bf S}^2_{k,30} {\bf S}^2_{k,00}\\ 1537.9\\1230.3\\871.2\\758.0\\644.7\end{array}$	$\begin{array}{c} \mbox{urogenital} \\ E(S^2_{36}S^2_{73}) = 1.4 \\ \mbox{Axis 36} \\ \mbox{http} \\ \mbox{www} \\ \mbox{htm} \\ \mbox{htm} \\ \mbox{htm} \\ \mbox{mtu} \\ \mbox{stateful} \\ \mbox{proxying} \\ \mbox{mps} \\ \mbox{vpns} \end{array}$	$\begin{array}{r} 1344.7 \\ \hline 19 \\ Axis 73 \\ \hline ip \\ tcp \\ protocols \\ protocol \\ \hline {\bf S}^2_{k,36} {\bf S}^2_{k,73} \\ 1425.4 \\ 1352.4 \\ 1324.2 \\ 1264.5 \\ 798.6 \\ \end{array}$	$\label{eq:constraint} \begin{array}{c} \operatorname{effictent} \\ \operatorname{mitral} \\ \overline{\mathrm{E}(S^2_{108}S^2_{133}) = } \\ \overline{\mathrm{Axis 168}} \\ \\ \overline{\mathrm{license}} \\ \\ \overline{\mathrm{copyleft}} \\ \\ \overline{w_k} \\ \\ \overline{\mathrm{copyleft}} \\ \\ \overline{\mathrm{magnatune}} \\ \\ \operatorname{redistribute} \\ \operatorname{copyrights} \end{array}$	$\begin{array}{c} 1143.5\\ \hline 1.495\\ \hline Axis 193\\ \hline rights \\ legislation\\ act\\ laws\\ \hline \\ \hline \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\$
$\frac{\text{somnolence}}{\text{E}(S_{16}^2S_{118}^2) = 2.12}$ $\frac{\text{Axis 16}}{\text{blood}}$ organs liver kidney $\frac{w_k}{\text{atrophy}}$ hemiparesis axonal dysfunction neuropathy myopathy	$\begin{array}{r} 1426.1\\ \hline \\ 4\\ \hline \\ 4xis 118\\ \hline \\ disorder\\ symptoms\\ \hline \\ \mathbf{S}_{k,16}^2 \mathbf{S}_{k,118}^2\\ 2110.2\\ 1877.5\\ 1465.9\\ 1380.2\\ 1380.2\\ 1300.1\\ 1288.3\\ \end{array}$	$\begin{array}{c} \mbox{cabrerana} \\ \mbox{E}(S_{30}^2S_{112}^2) = 2.0 \\ \mbox{Axis 30} \\ \mbox{stations} \\ \mbox{fm} \\ \mbox{radio} \\ \mbox{broadcast} \\ \mbox{value} \\ \mbox{rebroadcast} \\ \mbox{fn} \\ \mbox{rebroadcast} \\ \mbox{fm} \\ \mbox{rebroadcast} \\ rebr$	$\begin{array}{r} 2237.7\\ \hline & \\ & \\ \hline & \\ & \\ & \\ & \\ & \\ & \\ & $	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	$\begin{array}{r} 1005.6\\ \hline \\ 570\\ Axis 123\\ \hline \\ newspaper\\ weekly\\ weekly\\ weekly\\ wespapers\\ \hline \\ 8^2_{k,30} 8^2_{k,123}\\ \hline \\ 1941.7\\ 1343.4\\ 1276.0\\ 1144.2\\ 1116.1\\ 998.0\\ \hline \end{array}$	$\begin{array}{c} \mbox{cardiology} \\ \hline E(S^2_{36}S^2_{50}) = 1.0 \\ \mbox{Axis 36} \\ \hline \mbox{htm} \\ \mbox{www} \\ \mbox{htm} \\ \mbox{htm} \\ \mbox{htm} \\ \hline \mbox{shtml} \\ \mbox{geocities} \\ \mbox{jeancocteau} \\ \mbox{lfc} \\ \mbox{uchicago} \\ \mbox{artchive} \\ \end{array}$	$\begin{array}{r} 1447.4\\ 1433.3\\ \hline \\ 388\\ \hline \\ axis 50\\ \hline \\ site\\ website\\ forum\\ photos\\ \hline \\ \\ S^2_{k,30}S^2_{k,50}\\ \hline \\ 1537.9\\ 1230.3\\ 871.2\\ 758.0\\ 644.7\\ 593.3\\ \end{array}$	$\begin{array}{c} \mbox{urogenital} \\ \hline E(S^2_{36}S^2_{73}) = 1.4 \\ \mbox{Axis 36} \\ \hline \mbox{htm} \\ \mbox{htm} \\ \mbox{htm} \\ \mbox{htm} \\ \hline \mbox{mtu} \\ \mbox{stateful} \\ \mbox{proxying} \\ \mbox{mpls} \\ \mbox{kleinrock} \\ \hline \end{array}$	$\begin{array}{r} 1344.7\\ 19\\ \hline Axis 73\\ ip\\ tcp\\ protocol\\ \hline \mathbf{S}^2_{k,36}\mathbf{S}^2_{k,73}\\ 1425.4\\ 1352.4\\ 1352.4\\ 1352.4\\ 5798.6\\ 796.1\\ \end{array}$	$\label{eq:constraint} \begin{array}{c} \operatorname{effcrent} \\ \operatorname{mitral} \\ \overline{\mathrm{E}(S_{168}^2S_{133}^2) =} \\ \overline{\mathrm{E}(S_{168}^2S_{133}^2) =} \\ \overline{\mathrm{license}} \\ \overline{\mathrm{copyleft}} \\ \overline{\mathrm{copyleft}} \\ \overline{\mathrm{magnatune}} \\ \operatorname{redistribute} \\ \operatorname{copyrights} \\ \operatorname{circumvention} \end{array}$	1143.5 1.495 Axis 193 rights legislation act laws S ² _{k,168} S ² _{k,103} 1648.0 1131.9 839.7 809.7 676.5 653.3
$\begin{tabular}{ c c c c c } \hline Simplement \\ \hline E(S^2_{16}S^2_{118}) = 2.12 \\ Axis 16 \\ \hline blood \\ organs \\ liver \\ kidney \\ \hline \hline w_k \\ atrophy \\ hemiparesis \\ axonal \\ dysfunction \\ neuropathy \\ \hline E(S^2_{169}S^2_{72}) = 1.70 \\ \hline Axis 169 \\ \hline \end{tabular}$	$\begin{array}{r} 1426.1\\ \hline \\ 24\\ Axis 118\\ disorder\\ mental\\ disorders\\ symptoms\\ \hline \\ \mathbf{S}_{k,16}^{2}\mathbf{S}_{k,118}^{2}\\ 110.2\\ 1877.5\\ 1465.9\\ 1380.2\\ 1300.1\\ 1288.3\\ \end{array}$	$\begin{array}{c} \text{cabrerana} \\ \text{E}(S_{30}^2S_{112}^2) = 2.0 \\ \text{Axis 30} \\ \text{stations} \\ \text{fm} \\ \text{radio} \\ \text{broadcast} \\ \hline \\ \hline \\ \text{wk} \\ \text{rebroadcast} \\ \text{fns} \\ \text{rebroadcast} \\ \text{fns} \\ \text{rebroadcast} \\ \text{fns} \\ \text{retv} \\ \text{uyn} \\ \text{wxyz} \\ \text{whdh} \\ \text{E}(S_{44}^2S_{121}^2) = 2.0 \\ \text{Axis 44} \\ \end{array}$	$\begin{array}{r} 2237.7\\ \hline 2237.7\\ \hline 060\\ \hline \\ Axis 112\\ \hline episode\\ aired\\ show\\ tv\\ \hline \\ \mathbf{S}^{2}_{k,30}\mathbf{S}^{2}_{k,112}\\ \hline \\ 1635.4\\ 1635.4\\ 1605.9\\ 1534.6\\ 1441.3\\ 1392.0\\ \hline \\ 096\\ \hline \\ \underline{Axis 121}\\ \hline \end{array}$	$\begin{array}{c} \mbox{vena} \\ \hline E(S_{30}^2S_{123}^2) = 1 \\ \mbox{Axis 30} \\ \mbox{stations} \\ \mbox{fm} \\ \mbox{radio} \\ \hline w_k \\ \mbox{canwest} \\ \mbox{ctv} \\ \mbox{wqxr} \\ \mbox{superstation} \\ \mbox{wqxr} \\ \mbox{superstation} \\ \mbox{wanbao} \\ \mbox{aor} \\ \hline E(S_{45}^2S_{103}^2) = 1 \\ \mbox{Axis 45} \end{array}$	1005.6 .570 Axis 123 newspaper daily weekly newspapers S ² _{k,30} S ² _{k,123} 1941.7 1343.4 1276.0 1144.2 1116.1 998.0 .765 Axis 103	$\begin{array}{c} \mbox{cardiology}\\ E(S_{45}^2S_{56}^2) = 1.0\\ \mbox{Axis 36}\\ \mbox{htm}\\ \mbox{htm}\\ \mbox{www}\\ \mbox{htm}\\ \mbox{ml}\\ \mbox{geocilies}\\ \mbox{jeancocteau}\\ \mbox{Ifc}\\ \mbox{uchicago}\\ \mbox{artchive}\\ \mbox{E}(S_{40}^2S_{103}^2) = 1\\ \mbox{Axis 49}\\ \end{array}$	$\begin{array}{r} 1447.4\\ 1433.3\\ \hline \\ 888\\ Axis 50\\ site\\ website\\ forum\\ photos\\ \hline \\ \hline \\ \hline \\ 8^2_{k,30} 8^2_{k,50}\\ 1537.9\\ 1230.3\\ 871.2\\ 758.0\\ 644.7\\ 593.3\\ \hline \\ 616\\ Axis 193\\ \hline \end{array}$	$\begin{array}{c} \mbox{urogenital} \\ E(S_{36}^2S_{73}^2) = 1.4 \\ Axis 36 \\ \hline \mbox{htm} \\ www \\ \mbox{htm} \\ \hline \mbox{wk} \\ \hline \mbox{mtu} \\ stateful \\ \mbox{proxying} \\ \mbox{mpls} \\ \mbox{vpns} \\ kleinrock \\ \hline E(S_{56}^2S_{101}^2) = 1. \\ Axis 56 \\ \hline \end{array}$	$\begin{array}{r} 1344.7 \\ \hline 19 \\ \hline Axis 73 \\ \hline ip \\ tcp \\ protocol \\ \hline S^2_{k,36}S^2_{k,73} \\ 1425.4 \\ 1352.4 \\ 1352.4 \\ 1264.5 \\ 798.6 \\ \hline 796.1 \\ \hline 693 \\ \hline Axis 101 \\ \hline \end{array}$	$\begin{array}{l} \mbox{effcrent}\\ \mbox{miral}\\ E(S_{168}^2S_{133}^2) = \\ Axis 168\\ \hline \mbox{license}\\ \mbox{copyleft}\\ \mbox{gpl}\\ \hline \mbox{copyleft}\\ \m$	1143.5 1.495 Axis 193 rights legislation act Jaws S ² _{k,108} S ² _{k,103} 1648.0 1131.9 839.7 676.5 653.3 592 Axis 71
$\begin{array}{c} \mbox{sommolence} \\ \hline \mbox{E}(S^2_{16}S^2_{118}) = 2.12 \\ \mbox{Axis 16} \\ \hline \mbox{blood} \\ \mbox{organs} \\ \mbox{liver} \\ \mbox{kidney} \\ \hline \mbox{wk} \\ \mbox{atrophy} \\ \mbox{hemiparesis} \\ \mbox{axonal} \\ \mbox{dysfunction} \\ \mbox{neuropathy} \\ \mbox{myopathy} \\ \hline \mbox{E}(S^2_{169}S^2_{72}) = 1.76 \\ \mbox{Axis 169} \\ \hline \mbox{female} \end{array}$	$\begin{array}{r} 1426.1\\ \hline \\ 4\\ Axis 118\\ \hline \\ disorder\\ mental\\ disorders\\ symptoms\\ \hline \\ \\ \hline \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\$	$\begin{array}{c} \mbox{cabrerana} \\ \mbox{E}(S_{30}^2S_{112}^2) = 2.0 \\ \mbox{Axis } 30 \\ \mbox{stations} \\ \mbox{fm} \\ \mbox{radiosast} \\ \mbox{wradiosast} \\ \mbox{wradiosast} \\ \mbox{wryz} \\ \mbox{whdm} \\ \mbox{E}(S_{42}^2S_{121}^2) = 2.0 \\ \mbox{Axis } 44 \\ \mbox{plants} \\ \end{array}$	$\begin{array}{r} & 2237.7\\ \hline 060\\ Axis 112\\ \hline episode\\ aired\\ show\\ tv\\ \hline \\ \mathbf{S}_{k,30}^2 \mathbf{S}_{k,112}^2\\ 1635.4\\ 1630.9\\ 1534.6\\ 1441.3\\ 1392.0\\ \hline 096\\ \hline Axis 121\\ \hline families\\ \hline \end{array}$	$\label{eq:constraints} \begin{array}{l} \mbox{vena} \\ \hline {\rm E}(S_{30}^2S_{123}^2) = 1 \\ Axis 30 \\ stations \\ fm \\ radio \\ broadcast \\ \hline \hline w_k \\ cawest \\ ctv \\ wqxr \\ superstation \\ wanbao \\ aor \\ \hline {\rm E}(S_{15}^2S_{103}^2) = 1 \\ Axis 45 \\ \hline \hline quantum \end{array}$	1005.6 Axis 123 newspaper daily newspapers S ² _{k,30} S ² _{k,2123} 1941.7 1343.4 1276.0 1144.2 1116.1 998.0 .765 Axis 103 wavelength	$\begin{array}{c} \mbox{cardiology} \\ \mbox{E}(S_{39}^2S_{50}^2) = 1.0 \\ \mbox{Axis } 36 \\ \hline \mbox{htm} \\ \mbox{www} \\ \mbox{htm} \\ \mbox{htm} \\ \mbox{wk} \\ \mbox{shtml} \\ \mbox{geocitics} \\ \mbox{jeancodeau} \\ \mbox{Ifc} \\ \mbox{uchicago} \\ \mbox{atchive} \\ \hline \mbox{E}(S_{49}^2S_{103}^2) = 1 \\ \mbox{Axis } 49 \\ \mbox{court} \\ \hline \mbox{court} \\ \end{array}$	$\begin{array}{r} 1447.4\\ 1433.3\\ \hline \\ 88\\ \hline \\ Axis 50\\ site\\ website\\ forum\\ photos\\ \hline \\ \hline \\ S_{k,36}^2 S_{k,50}^2\\ 1230.3\\ 871.2\\ 758.0\\ 644.7\\ 593.3\\ \hline \\ 616\\ \hline \\ Axis 193\\ \hline \\ rights\\ \hline \end{array}$	$\begin{array}{l} \mbox{urogenital} \\ E(S^2_{30}S^2_{73}) = 1.4 \\ \mbox{Axis 36} \\ \mbox{htm} \\ \mbox{www} \\ \mbox{htm} \\ \mbox{htm} \\ \mbox{wtm} \\ \mbox{stateful} \\ \mbox{prox}, \mbox{ing} \\ \mbox{vpns} \\ \mbox{kleinrock} \\ E(S^2_{50}S^2_{101}) = 1.4 \\ \mbox{Axis 56} \\ \mbox{cpu} \end{array}$	$\begin{array}{r} 1344.7\\ \hline 19\\ Axis 73\\ \hline ip\\ tcp\\ protocols\\ \hline S^2_{k,36}S^2_{k,73}\\ 1425.4\\ 1352.4\\ 1352.4\\ 1324.2\\ 1264.5\\ 798.6\\ 796.1\\ \hline 693\\ \hline Axis 101\\ \hline voltage\\ \end{array}$	$\begin{array}{l} \mbox{effcrent}\\ \mbox{effcrent}\\ \mbox{if} E(S_{168}^2S_{133}^2) = \\ \mbox{Axis} 168 \\ \mbox{license} \\ \mbox{copyleft} \\ \mbox{gpl} \\ \mbox{icenses} \\ \mbox{w}_k \\ \mbox{copyleft} \\ \$	1143.5 1.495 Axis 193 rights legislation act laws S ² _{k,168} S ² _{k,193} 1648.0 1131.9 839.7 676.5 653.3 5992 Axis 71 game
$\begin{tabular}{ c c c c c } \hline Simplement \\ \hline E(S^2_{16}S^2_{118}) = 2.12 \\ Axis 16 \\ \hline blood \\ organs \\ liver \\ kidney \\ \hline \hline w_k \\ atrophy \\ hemiparesis \\ axonal \\ dysfunction \\ neuropathy \\ \hline E(S^2_{169}S^2_{72}) = 1.70 \\ \hline Axis 169 \\ \hline \end{tabular}$	$\begin{array}{r} 1426.1\\ \hline \\ 24\\ Axis 118\\ disorder\\ mental\\ disorders\\ symptoms\\ \hline \\ \mathbf{S}_{k,16}^{2}\mathbf{S}_{k,118}^{2}\\ 110.2\\ 1877.5\\ 1465.9\\ 1380.2\\ 1300.1\\ 1288.3\\ \end{array}$	$\begin{array}{c} \text{cabrerana} \\ \text{E}(S_{30}^2S_{112}^2) = 2.0 \\ \text{Axis 30} \\ \text{stations} \\ \text{fm} \\ \text{radio} \\ \text{broadcast} \\ \hline \\ \hline \\ \text{wk} \\ \text{rebroadcast} \\ \text{fns} \\ \text{rebroadcast} \\ \text{fns} \\ \text{rebroadcast} \\ \text{fns} \\ \text{retv} \\ \text{uyn} \\ \text{wxyz} \\ \text{whdh} \\ \text{E}(S_{44}^2S_{121}^2) = 2.0 \\ \text{Axis 44} \\ \end{array}$	$\begin{array}{r} 2237.7\\ \hline 2237.7\\ \hline 060\\ \hline \\ Axis 112\\ \hline episode\\ aired\\ show\\ tv\\ \hline \\ \mathbf{S}^{2}_{k,30}\mathbf{S}^{2}_{k,112}\\ \hline \\ 1635.4\\ 1635.4\\ 1605.9\\ 1534.6\\ 1441.3\\ 1392.0\\ \hline \\ 096\\ \hline \\ \underline{Axis 121}\\ \hline \end{array}$	$\begin{array}{c} \mbox{vena} \\ \hline E(S_{30}^2S_{123}^2) = 1 \\ \mbox{Axis 30} \\ \mbox{stations} \\ \mbox{fm} \\ \mbox{radio} \\ \hline w_k \\ \mbox{canwest} \\ \mbox{ctv} \\ \mbox{wqxr} \\ \mbox{superstation} \\ \mbox{wqxr} \\ \mbox{superstation} \\ \mbox{wanbao} \\ \mbox{aor} \\ \hline E(S_{45}^2S_{103}^2) = 1 \\ \mbox{Axis 45} \end{array}$	1005.6 .570 Axis 123 newspaper daily weekly newspapers S ² _{k,30} S ² _{k,123} 1941.7 1343.4 1276.0 1144.2 1116.1 998.0 .765 Axis 103	$\begin{array}{c} \mbox{cardiology}\\ E(S_{45}^2S_{56}^2) = 1.0\\ \mbox{Axis 36}\\ \mbox{htm}\\ \mbox{htm}\\ \mbox{www}\\ \mbox{htm}\\ \mbox{ml}\\ \mbox{geocilies}\\ \mbox{jeancocteau}\\ \mbox{Ifc}\\ \mbox{uchicago}\\ \mbox{artchive}\\ \mbox{E}(S_{40}^2S_{103}^2) = 1\\ \mbox{Axis 49}\\ \end{array}$	$\begin{array}{r} 1447.4\\ 1433.3\\ \hline \\ 888\\ Axis 50\\ site\\ website\\ forum\\ photos\\ \hline \\ \hline \\ \hline \\ \\ S_{k,30}^2S_{k,50}^2\\ 1537.9\\ 1230.3\\ 871.2\\ 758.0\\ 644.7\\ 593.3\\ \hline \\ 616\\ Axis 193\\ \hline \end{array}$	$\begin{array}{c} \mbox{urogenital} \\ E(S_{36}^2S_{73}^2) = 1.4 \\ Axis 36 \\ \hline \mbox{htm} \\ www \\ \mbox{htm} \\ \hline \mbox{wk} \\ \hline \mbox{mtu} \\ stateful \\ \mbox{proxying} \\ \mbox{mpls} \\ \mbox{vpns} \\ kleinrock \\ \hline E(S_{56}^2S_{101}^2) = 1. \\ Axis 56 \\ \hline \end{array}$	$\begin{array}{r} 1344.7 \\ \hline 19 \\ \hline Axis 73 \\ \hline ip \\ tcp \\ protocol \\ \hline S^2_{k,36}S^2_{k,73} \\ 1425.4 \\ 1352.4 \\ 1352.4 \\ 1264.5 \\ 798.6 \\ \hline 796.1 \\ \hline 693 \\ \hline Axis 101 \\ \hline \end{array}$	$\begin{array}{l} \mbox{effcrent}\\ \mbox{miral}\\ E(S_{168}^2S_{133}^2) = \\ Axis 168\\ \hline \mbox{license}\\ \mbox{copyleft}\\ \mbox{gpl}\\ \hline \mbox{copyleft}\\ \m$	1143.5 1.495 Axis 193 rights legislation act Jaws S ² _{k,108} S ² _{k,103} 1648.0 1131.9 839.7 676.5 653.3 592 Axis 71
$\begin{tabular}{ c c c c c } \hline $sigma black \\ \hline $E(S^2_{16}S^2_{118}) = 2.12$\\ \hline $Axis 16$\\ \hline $blood$\\ organs\\ liver\\ kidney\\ \hline w_k\\ \hline $atrophy$\\ hemiparesis\\ axonal\\ dysfunction\\ neuropathy\\ myopathy\\ \hline $E(S^2_{160}S^2_{12}) = 1.76$\\ \hline $Axis 169$\\ \hline $female$\\ male \\ \hline $male$\\ \hline \end{tabular}$	1426.1 Axis 118 disorder mental disorders symptoms S ² _{k,16} S ² _{k,118} 2110.2 1877.5 1465.9 1380.2 1300.1 1288.3 N Axis 72 sexual sex	$\begin{array}{c} \mbox{cabrerana} \\ \hline {\rm E}(S_{30}^2S_{112}^2) = 2.0 \\ \mbox{Axis 30} \\ \mbox{stations} \\ \mbox{fm} \\ \mbox{radio} \\ \mbox{broadcast} \\ \hline \mbox{wast} \\ \mbox{vectors} \\ \mbox{wxy} \\ \mbox{whdh} \\ \mbox{etv} \\ \mbox{upn} \\ \mbox{wxyz} \\ \mbox{whdh} \\ \mbox{E}(S_{40}^2S_{121}^2) = 2.0 \\ \mbox{Axis 44} \\ \hline \mbox{plant} \\ \hline \mbox{plant} \\ \end{array}$	$\begin{array}{r} 2237.7\\ \hline \\ & Axis 112\\ \hline \\ episode\\ aired\\ show\\ tv\\ \hline \\ & \mathbf{S}_{k,30}^2 \mathbf{S}_{k,112}^2\\ \hline \\ & \mathbf{S}_{k,30}^2 \mathbf{S}_{k,112}^2\\ \hline \\ & 1729.4\\ \hline \\ & 1635.4\\ \hline \\ & 1605.4\\ \hline \\ & 1635.4\\ \hline \\ & 1605.4\\ \hline \\ & 1635.4\\ \hline \\ & 1$	$\label{eq:static_state} \hline \begin{array}{c} \mbox{vena} \\ \hline \mbox{E}(S_{30}^2S_{123}^2) = 1 \\ \mbox{Axis 30} \\ \hline \mbox{stations} \\ \hline \mbox{fm} \\ \mbox{radio} \\ \hline \mbox{broadcast} \\ \hline \hline \mbox{wak} \\ \mbox{ctv} \\ \mbox{wapsa} \\ \mbox{aor} \\ \hline \mbox{E}(S_{35}^2S_{103}^2) = 1 \\ \mbox{Axis 45} \\ \hline \mbox{quantum} \\ \hline \mbox{quantum} \\ \hline \mbox{quantum} \\ \hline \mbox{quantum} \\ \hline \mbox{particles} \\ \hline \end{array}$	$\begin{array}{r} 1005.6\\ \hline \\ 570\\ \hline \\ Axis 123\\ \hline \\ newspaper\\ sexplays \\ se$	$\begin{array}{c} \mbox{cardiology} \\ \hline E(S^2_{36}S^2_{50}) = 1.0 \\ \mbox{Axis 36} \\ \hline \mbox{htm} \\ \mbox{www} \\ \mbox{htm} \\ \mbox{htm} \\ \mbox{shtml} \\ \mbox{geocitics} \\ \mbox{jeancocteau} \\ \mbox{Ifc} \\ \mbox{uchicago} \\ \mbox{artchive} \\ \hline E(S^2_{45}S^2_{193}) = 1 \\ \mbox{Axis 49} \\ \mbox{court} \\ \mbox{judge} \end{array}$	$\begin{array}{r} 1447.4\\ 1433.3\\ \hline \\ 388\\ \hline \\ Axis 50\\ \hline \\ site\\ website\\ forum\\ photos\\ \hline \\ \hline \\ 8^2_{k,30}8^2_{k,50}\\ \hline \\ 1537.9\\ 1230.3\\ 871.2\\ 758.0\\ 644.7\\ 7593.3\\ \hline \\ 616\\ \hline \\ Axis 193\\ \hline \\ rights\\ \\ legislation\\ \hline \end{array}$	$\begin{array}{c} \mbox{urogenital} \\ \hline E(S^2_{36}S^2_{73}) = 1.4 \\ \mbox{Axis 36} \\ \hline \mbox{htm} \\ \mbox{htm} \\ \mbox{htm} \\ \mbox{htm} \\ \mbox{htm} \\ \mbox{htm} \\ \mbox{mtu} \\ \mbox{stateful} \\ \mbox{proxying} \\ \mbox{mps} \\ \mbox{kleinrock} \\ \mbox{E}(S^2_{56}S^2_{101}) = 1. \\ \mbox{Axis 56} \\ \mbox{cpu} \\ \mbox{microprocessor} \end{array}$	$\begin{array}{r} 1344.7 \\ \hline 19 \\ Axis 73 \\ \hline ip \\ tcp \\ protocols \\ protocol \\ \hline S^2_{k,36} S^2_{k,73} \\ 1425.4 \\ 1352.4 \\ 1324.2 \\ 1264.5 \\ 798.6 \\ 796.1 \\ \hline 693 \\ \hline Axis 101 \\ \hline voltage \\ electrical \\ circuits \\ current \\ \end{array}$	$\begin{array}{c} \text{effrent}\\ \text{mitral}\\ \hline\\ E(S_{168}^2S_{133}^2) = \\ Axis 168\\ \hline\\ \text{license}\\ \\ \text{opyleft}\\ \\ \text{magnature}\\ \\ \text{redistribute}\\ \\ \text{copyleft}\\ \\ \\ \text{magnature}\\ \\ \text{redistribute}\\ \\ \text{copyrights}\\ \\ \text{circumvention}\\ \\ \hline\\ E(S_{16}^2S_{11}^2) = 1.\\ \\ Axis 56\\ \hline\\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ $	1143.5 1.495 Axis 193 rights legislation act laws S ² _{k,168} S ² _{k,193}
$\begin{array}{c} \mbox{sommolence} \\ \hline sommolence \\ \hline E(S^2_{16}S^2_{118}) = 2.12 \\ \mbox{Axis 16} \\ \hline \mbox{blood} \\ \mbox{organs} \\ \mbox{liver} \\ \mbox{kidney} \\ \hline \\ \mbox{wk} \\ \mbox{atrophy} \\ \mbox{hemiparesis} \\ \mbox{axonal} \\ \mbox{dysfunction} \\ \mbox{neuropathy} \\ \mbox{myopathy} \\ \hline \\ \mbox{E}(S^2_{10}S^2_{12}) = 1.70 \\ \mbox{Axis 169} \\ \hline \\ \mbox{female} \\ \\ \mbox{male} \\ \mbox{age} \end{array}$	$\begin{array}{r} 1426.1\\ \hline \\ 4\\ \hline \\ 4\\ \hline \\ 4\\ \hline \\ 4\\ \hline \\ 8\\ \hline \\ \\ 8\\ \hline \\ 8\\$	$\begin{array}{c} \mbox{cabrerana} \\ \mbox{cabrerana} \\ \mbox{E}(S_{30}^2S_{112}^2) = 2.0 \\ \mbox{Axis 30} \\ \mbox{stations} \\ \mbox{fm} \\ \mbox{radios} \\ \mbox{broadcast} \\ \mbox{wk} \\ \mbox{rebroadcast} \\ \mbox{rebroadcast} \\ \mbox{rebroadcast} \\ \mbox{wk} \\ \mbox{rebroadcast} \\ \mbox{rebroadcast} \\ \mbox{rebroadcast} \\ \mbox{rebroadcast} \\ \mbox{wk} \\ \mbox{rebroadcast} \\$	$\begin{array}{r} 2237.7\\ \hline & 2237.7\\ \hline & 060\\ \hline & Axis 112\\ \hline episode\\ aired\\ show\\ tv\\ \hline & \\ \mathbf{S}^{2}_{k,30}\mathbf{S}^{2}_{k,112}\\ \hline & \mathbf{S}^{2}_{k,30}\mathbf{S}^{2}_{k,112}\\ \hline & 1729.4\\ \hline & 1635.4\\ \hline & 1$	$\label{eq:constraints} \begin{array}{c} \mbox{vena} \\ \hline E(S_{30}^2S_{123}^2) = 1 \\ \mbox{Axis 30} \\ \hline stations \\ \mbox{fm} \\ radio \\ \mbox{broadcast} \\ \hline \\ \hline \\ \hline \\ \hline \\ \hline \\ \hline \\ \\ \hline \\ \\ \hline \\ \\ \hline \\ \\ \\ \hline \\$	$\begin{array}{r} 1005.6\\ \hline 1005.6\\ \hline Axis 123\\ \hline newspaper\\ daily\\ weekly\\ newspapers\\ \hline {\bf S}^2_{k,30} {\bf S}^2_{k,123}\\ \hline 1941.7\\ 1343.4\\ 1276.0\\ 0\\ 1144.2\\ 1116.1\\ 998.0\\ \hline .765\\ \hline {\bf Axis 103}\\ \hline wavelength\\ light\\ wavelength\\ \end{array}$	$\begin{array}{c} \mbox{cardiology} \\ \hline E(S_{20}^2S_{20}^2) = 1.0 \\ \mbox{Axis 36} \\ \hline \mbox{htm} \\ \mbox{htm} \\ \mbox{htm} \\ \mbox{htm} \\ \mbox{geocities} \\ \mbox{jeancocteau} \\ \mbox{If} \\ \mbox{geocities} \\ \mbox{geacched} \\ \mbox{If} \\ \mbox{geocities} \\ \mbox{geacched} \\ \mbox{If} \\ \mbox{geocities} \\ \mbox{geacched} \\ \mbox{geocities} \\ \mbox{geacched} \\ \mbox{geocities} \\ \mbox{geacched} \\ \mbox{geocities} \\ \mbox{geacched} \\ \mbox{geacched} \\ \mbox{geocities} \\ \mbox{geacched} \\$	$\begin{array}{r} 1447.4\\ 1433.3\\ \hline \\ 888\\ \hline \\ Axis 50\\ site\\ website\\ forum\\ photos\\ \hline \\ \hline \\ 8^2_{k,30} 8^2_{k,50}\\ \hline \\ 1537.9\\ 1230.3\\ 871.2\\ 758.0\\ 644.7\\ 593.3\\ \hline \\ 871.2\\ 758.0\\ \hline \\ 871.2\\ \hline \\ 871.2\\$	$\begin{array}{c} \mbox{urogenital} \\ E(S^2_{30}S^2_{13}) = 1.4 \\ \mbox{Axis 36} \\ \hline \mbox{htm} \\ \mbox{www} \\ \mbox{htm} \\ \hline \mbox{wk} \\ \mbox{mtu} \\ \mbox{stateful} \\ \mbox{proxying} \\ \mbox{mpls} \\ \mbox{vpns} \\ \mbox{kleinrock} \\ \hline E(S^2_{30}S^2_{101}) = 1. \\ \mbox{Axis 56} \\ \mbox{cpu coccessor} \\ \mbox{processor} \\ \hline \end{array}$	$\begin{array}{r} 1344.7\\ \hline 19\\ \hline Axis 73\\ \hline ip\\ tcp\\ protocol\\ \hline S^2_{k,36}S^2_{k,73}\\ 1352.4\\ 1352.4\\ 1352.4\\ 1264.5\\ 796.6\\ \hline 796.1\\ \hline 693\\ \hline Axis 101\\ \hline voltage\\ electrical\\ circuits\\ \end{array}$	$\begin{array}{l} \mbox{effcrent}\\ \mbox{miral}\\ E(S_{168}^2S_{133}^2) = \\ Axis 168\\ \hline \mbox{license}\\ \mbox{copyleft}\\ \mbox{gpl}\\ \hline \mbox{licenses}\\ \hline \mbox{w}_k\\ \hline \mbox{copyleft}\\ \mb$	1143.5 1.495 Axis 193 rights legislation act Jaws S ² _{k,108} S ² _{k,109} S ² _{k,108} S ² _{k,108} S ² _{k,109} Tofa.5 0 131.9 839.7 809.7 676.5 653.3 592 Axis 71 game games gameplay
$\begin{tabular}{ c c c c } \hline & somolence \\ \hline E(S^2_{16}S^2_{118}) = 2.12 \\ \hline Axis 16 \\ \hline blood \\ organs \\ liver \\ kidney \\ \hline \hline w_k \\ atrophy \\ hemiparesis \\ axonal \\ dysfunction \\ neuropathy \\ myopathy \\ \hline myopathy \\ E(S^2_{169}S^2_{72}) = 1.70 \\ \hline Axis 169 \\ \hline female \\ age \\ infant \\ \hline \hline w_k \\ \hline male \\ \hline \hline male \\ \hline \hline \end{array}$	$\begin{array}{r} \begin{array}{r} 1426.1\\ \hline \\ Axis 118\\ \hline \\ disorder\\ symptoms\\ \hline \\ \mathbf{S}_{k,10}^2 \mathbf{S}_{k,118}^2\\ \hline \\ 2110.2\\ 1877.5\\ 1465.9\\ 1380.2\\ 1300.1\\ 1288.3\\ \hline \\ 1380.2\\ 1300.1\\ 1288.3\\ \hline \\ \\ \mathbf{S}_{k,10}^2 \mathbf{S}_{k,10}^2\\ \hline \\ \\ \\ \mathbf{S}_{k,10}^2 \mathbf{S}_{k,10}^2\\ \hline \\ \\ \mathbf{S}_{k,10}^2 \mathbf{S}_{k,10}^2\\ \hline \\ \\ \mathbf{S}_{k,10}^2 \mathbf{S}_{k,10}^2\\ \hline \\ \\ \\ \mathbf{S}_{k,10}^2 \mathbf{S}_{k,10}^2\\ \hline \\ \\ \\ \mathbf{S}_{k,10}^2 \mathbf{S}_{k,10}^2\\ \hline \\ \\ \mathbf{S}_{k,10}^2 \mathbf{S}_{k,10}^2\\ \hline \\ \\ \\ \mathbf$	$\begin{array}{c} \mbox{cabrerana} \\ \mbox{E}(S_{30}^2S_{112}^2) = 2.0 \\ \mbox{Axis 30} \\ \mbox{stations} \\ \mbox{fm} \\ \mbox{radiosast} \\ \mbox{w}_k \\ \mbox{rebroadcast} \\ \mbox{fm} \\ \mbox{plants} \\ \mbox{plants} \\ \mbox{plants} \\ \mbox{plants} \\ \mbox{fmowering} \\ \mbox{w}_k \\ \mbox{rosid} \\ \mbox{rosid} \\ \mbox{rosid} \\ \mbox{fmom} \\ \mbox{rosid} \\ \mbo$	$\begin{array}{r} \hline 2237.7\\ \hline \\ \hline \\ Axis 112\\ \hline \\ episode\\ aired\\ show\\ tv\\ \hline \\ \hline \\ \hline \\ \mathbf{S}^2_{k,30}\mathbf{S}^2_{k,112}\\ \hline \\ 1729.4\\ 1635.4\\ 1630.9\\ \hline \\ 1534.6\\ 1441.3\\ 1392.0\\ \hline \\ \hline \\ Axis 121\\ \hline \\ family\\ older\\ household\\ \hline \\ \mathbf{S}^2_{k,44}\mathbf{S}^2_{k,121}\\ \hline \\ 4158.0\\ \hline \end{array}$	$\label{eq:constraint} \hline \begin{array}{c} \mbox{vena} \\ \hline {\rm E}(S_{30}^2S_{123}^2) = 1 \\ \mbox{Axis 30} \\ \mbox{stations} \\ \mbox{fm} \\ \mbox{radio} \\ \mbox{broadcast} \\ \hline \hline \\ \hline $	$\begin{array}{r} 1005.6\\ \hline \\ 570\\ Axis 123\\ \hline \\ newspaper\\ dialy\\ weekly\\ newspapers\\ \hline \\ S^2_{k,30}S^2_{k,213}\\ 1941.7\\ 1343.4\\ 1276.0\\ 1144.2\\ 1116.1\\ 998.0\\ \hline \\ 1144.2\\ 1116.1\\ 998.0\\ \hline \\ 8xis 10.3\\ \hline \\ wavelength\\ light\\ wavelength\\ light\\ wavelength\\ laser\\ \hline \\ S^2_{k,45}S^2_{k,103}\\ \hline \\ 3078.7\\ \hline \end{array}$	$\begin{array}{c} \mbox{cardiology} \\ \hline E(S_{30}^2S_{50}^2) = 1.0 \\ \mbox{Axis } 36 \\ \hline \mbox{htm} \\ \mbox{www} \\ \mbox{htm} \\ \mbox{htm} \\ \mbox{dwww} \\ \mbox{htm} \\ \mbox{geocitics} \\ geo$	$\begin{array}{r} 1447.4\\ 1433.3\\ \hline \\ 388\\ \hline \\ Axis 50\\ \hline \\ site\\ website\\ forum\\ photos\\ \hline \\ \hline \\ 8^{2}_{k,30}8^{2}_{k,50}\\ \hline \\ 1537.9\\ 1230.3\\ 871.2\\ 758.0\\ 644.7\\ 7593.3\\ \hline \\ 644.7\\ 7593.3\\ \hline \\ 616\\ \hline \\ Axis 193\\ \hline \\ rights\\ legislation\\ act\\ laws\\ \hline \\ 8^{2}_{k,49}8^{2}_{k,103}\\ \hline \\ 954.7\\ \hline \\ 954.7\\ \hline \\ 954.7\\ \hline \end{array}$	$\label{eq:constraint} \begin{split} & \frac{\text{urogenital}}{\text{E}(S^2_{30}S^2_{13}) = 1.4} \\ & \text{Axis 36} \\ & \text{http} \\ & \text{www} \\ & \text{htm} \\ & \frac{w_k}{\text{mtu}} \\ & \text{mtu} \\ & \text{stateful} \\ & \text{proxying} \\ & \text{mpls} \\ & \text{vyns} \\ & \text{kleinrock} \\ & \text{E}(S^2_{50}S^2_{101}) = 1.4 \\ & \text{Axis 56} \\ & \text{cpu} \\ & \text{microprocessor} \\ & \text{cpus} \\ & \frac{w_k}{\text{lsi}} \\ \hline \\ & \text{lsi} \end{split}$	$\begin{array}{r} & 1344.7 \\ \hline 19 \\ Axis 73 \\ \hline ip \\ tcp \\ protocol \\ \hline S^2_{k,36}S^2_{k,73} \\ 1425.4 \\ 1352.4 \\ 1324.2 \\ 1264.5 \\ 798.6 \\ 796.1 \\ \hline 693 \\ \hline Axis 101 \\ \hline voltage \\ electrical \\ circuits \\ current \\ \hline S^2_{k,56}S^2_{k,101} \\ \hline 2289.8 \\ \end{array}$	$\label{eq:constraint} \begin{array}{c} \operatorname{effcrent} \\ \operatorname{mitral} \\ \overline{\mathrm{E}(S_{168}^2S_{133}^2) = 4} \\ \overline{\mathrm{E}(S_{168}^2S_{133}^2) = 1} \\ \overline{\mathrm{Axis 168}} \\ \overline{\mathrm{license}} \\ \overline{\mathrm{copyleft}} \\ \overline{\mathrm{magnatune}} \\ \operatorname{rightsholder} \\ \operatorname{rightsholder} \\ \operatorname{rightsholder} \\ \operatorname{rightsholder} \\ \operatorname{rightsholder} \\ \operatorname{rightsholder} \\ \overline{\mathrm{copyrights}} \\ \overline{\mathrm{copyrights}} \\ \overline{\mathrm{coressor}} \\ \overline{\mathrm{copyrights}} \\ \\$	1143.5 Axis 193 rights legislation act laws S ² _{k.108} S ² _{k.108} 1648.0 1131.9 839.7 809.7 676.5 653.3 592 Axis 71 game gameglay multiplayer S ² _{k.56} S ² _{k.71} 1398.9
$\begin{tabular}{ c c c c } \hline Simplemete \\ \hline E(S^2_{16}S^2_{118}) = 2.12 \\ \hline Axis 16 \\ \hline blood \\ organs \\ liver \\ kidney \\ \hline \hline w_k \\ \hline atrophy \\ hemiparesis \\ axonal \\ dysfunction \\ neuropathy \\ \hline myopathy \\ \hline E(S^2_{16}S^2_{72}) = 1.70 \\ \hline Axis 169 \\ \hline female \\ \hline male \\ \hline age \\ infant \\ \hline \hline w_k \\ \hline \hline male \\ \hline male $	$\begin{array}{r} 1426.1\\ \hline \\ 4 \\ Axis 118\\ \hline \\ disorder\\ mental\\ disorders\\ symptoms\\ \hline \\ {\bf S}^{2}_{k,16} {\bf S}^{2}_{k,118}\\ 2110.2\\ 1877.5\\ 1465.9\\ 1380.2\\ 1300.1\\ 1288.3\\ \hline \\ 1300.1\\ 1288.3\\ \hline \\ {\bf Axis 72}\\ sexual\\ sex\\ homosexual\\ heterosexual\\ heterosexual\\ heterosexual\\ \hline {\bf S}^{2}_{k,109} {\bf S}^{2}_{k,72}\\ \hline \\ {\bf 1240.5\\ 1191.4} \end{array}$	$\begin{array}{c} \mbox{cabrerana} \\ \mbox{E}(S_{30}^2S_{112}^2) = 2.0 \\ \mbox{Axis 30} \\ \mbox{stations} \\ \mbox{fm} \\ \mbox{radios} \\ \mbox{radios} \\ \mbox{wk} \\ \mbox{rebroadcast} \\ \mbox{wk} \\ \mbox{rebroadcast} \\ rebroa$	$\begin{array}{r} \hline 2237.7\\ \hline & 2237.7\\ \hline & Axis 112\\ \hline episode\\ aired\\ show\\ tv\\ \hline & \\ \hline \\ \mathbf{S}^{2}_{k,30}\mathbf{S}^{2}_{k,112}\\ \hline \\ & 1729.4\\ \hline \\ & 1635.4\\ \hline \\ & 1729.4\\ \hline \\ & 1635.4\\ \hline \\ & 1729.4\\ \hline \\ & 1635.4\\ \hline \\ & 1635.4\\ \hline \\ & 1729.4\\ \hline \\ & 1635.4\\ \hline \\ & 1635.4\\ \hline \\ & 1729.4\\ \hline \\ & 1729.4\\ \hline \\ & 1635.4\\ \hline \\ & 1729.4\\ \hline \\ & 1729.4\\ \hline \\ & 1635.4\\ \hline \\ & 1729.4\\ \hline \\ & 1729.4\\ \hline \\ & 1729.4\\ \hline \\ & 1635.4\\ \hline \\ & 1729.4\\ $	$\label{eq:constraints} \hline \begin{array}{c} \mbox{vena} \\ \hline E(S_{30}^2S_{123}^2) = 1 \\ \mbox{Axis 30} \\ \hline \mbox{stations} \\ \hline \mbox{fm} \\ \mbox{radio} \\ \hline \mbox{wk} \\ \hline \mbox{canwest} \\ \mbox{ctv} \\ \mbox{wqxr} \\ \mbox{superstation} \\ \mbox{wanbao} \\ \mbox{aor} \\ \hline \mbox{E}(S_{35}^2S_{103}^2) = 1 \\ \hline \mbox{Axis 45} \\ \hline \mbox{quantum} \\ \mbox{particle} \\ \mbox{mesons} \\ \mbox{gluons} \\ \hline \end{array}$	$\begin{array}{r} 1005.6\\ \hline 1005.6\\ \hline Axis 123\\ newspaper\\ dialy\\ weekly\\ newspapers\\ \hline $$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$	$\begin{array}{c} \mbox{cardiology} \\ \hline E(S_{45}^2 S_{50}^2) = 1.0 \\ \mbox{Axis 36} \\ \hline \mbox{htm} \\ \mbox{htm} \\ \mbox{www} \\ \mbox{htm} \\ \mbox{wk} \\ \mbox{shtml} \\ \mbox{geocitics} \\ \mbox{jeancocteau} \\ \mbox{Ifc} \\ \mbox{uchicago} \\ \mbox{artchive} \\ \hline \mbox{E}(S_{40}^2 S_{103}^2) = 1 \\ \mbox{Axis 49} \\ \mbox{court} \\ \mbox{jeancocteau} \\ \mbox{figure} \\ \mbox{court} \\ \mbox{judge} \\ \mbox{courts} \\ \mbox{trial} \\ \mbox{max} \\ \mbox{habeas} \\ \mbox{declaratory} \\ \end{array}$	$\begin{array}{r} 1447.4\\ 1433.3\\ \hline \\ 888\\ \hline \\ Axis 50\\ site\\ website\\ forum\\ photos\\ \hline \\ S^2_{k,30}S^2_{k,50}\\ \hline \\ 1537.9\\ 1230.3\\ 871.2\\ 758.0\\ 644.7\\ 593.3\\ 871.2\\ 758.0\\ 644.7\\ 593.3\\ \hline \\ rights\\ legislation\\ act\\ laws\\ \hline \\ S^2_{k,49}S^2_{k,193}\\ \hline \\ S^2_{k,49}S^2_{k,193}\\ \hline \\ 823.5\\ \hline \end{array}$	$\label{eq:constraint} \begin{split} & \frac{\text{urogenital}}{\text{E}(S_{3g}^2S_{73}^2) = 1.4} \\ & \text{Axis 36} \\ & \text{http} \\ & \text{www} \\ & \text{htm} \\ & \frac{w_k}{\text{mtu}} \\ & \frac{w_k}{\text{mtu}} \\ & \frac{w_k}{\text{stateful}} \\ & \text{proxying} \\ & \text{mpls} \\ & \text{vpns} \\ & \text{kleinrock} \\ \hline & \text{E}(S_{5g}^2S_{101}^2) = 1. \\ & \text{Axis 56} \\ & \text{cpu} \\ & \text{microprocessor} \\ & \text{cpus} \\ & \frac{w_k}{\text{lsi}} \\ \hline & \text{lsi} \\ \hline & \text{microelecetronic} \end{split}$	$\begin{array}{r} 1344.7\\ \hline 19\\ \hline Axis 73\\ \hline ip\\ tcp\\ protocol\\ \hline S^2_{k,30}S^2_{k,73}\\ 1425.4\\ 1352.4\\ 1352.4\\ 1264.5\\ 798.6\\ 796.1\\ \hline 693\\ \hline Axis 101\\ \hline voltage\\ electrical\\ circuits\\ current\\ \hline S^2_{k,50}S^2_{k,101}\\ \hline S^2_{50,8}S^2_{k,101}\\ 2589.8\\ 2081.5\\ \hline \end{array}$	$\begin{array}{l} \mbox{efficient}\\ \mbox{mitral}\\ \hline E(S_{168}^2S_{133}^2) = \\ \mbox{Axis 168}\\ \hline \\ \mbox{license}\\ \hline \\ \mbox{copyleft}\\ \mbox{gpl}\\ \hline \\ \mbox{copyleft}\\ $	$\begin{array}{r} 1143.5\\ \hline 1.495\\ \hline Axis 193\\ \hline rights\\ legislation\\ act\\ laws\\ \hline $$^2_{k,108}$$^2_{k,103}$\\ \hline $$^2_{k,108}$$^2_{k,103}$\\ \hline $$1648.0$\\ \hline $$131.9$\\ \hline $$39,7$\\ \hline $$50,5$\\ \hline $$52$\\ \hline $$40,5$\\ \hline $$71$\\ \hline $$20000000000000000000000000000000000$
$\begin{tabular}{ c c c c } \hline & somolence \\ \hline & E(S^2_{16}S^2_{118}) = 2.12 \\ \hline & Axis 16 \\ \hline & blood \\ & organs \\ & liver \\ & kidney \\ \hline & w_k \\ \hline & atrophy \\ & hemiparesis \\ & axonal \\ & dysfunction \\ & neuropathy \\ & myopathy \\ \hline & myopathy \\ \hline & E(S^2_{169}S^2_{72}) = 1.70 \\ \hline & Axis 169 \\ & female \\ & age \\ & infant \\ \hline & w_k \\ \hline & male \\ \hline \hline \hline \hline \\ \hline \hline \hline \hline \hline \\ \hline \hline \hline \hline \hline \hline \hline $	$\begin{array}{r} \begin{array}{r} 1426.1\\ \hline \\ Axis 118\\ \hline \\ disorder\\ symptoms\\ \hline \\ \mathbf{S}_{k,10}^2 \mathbf{S}_{k,118}^2\\ \hline \\ 2110.2\\ 1877.5\\ 1465.9\\ 1380.2\\ 1300.1\\ 1288.3\\ \hline \\ 1380.2\\ 1300.1\\ 1288.3\\ \hline \\ \\ \mathbf{S}_{k,10}^2 \mathbf{S}_{k,10}^2\\ \hline \\ \\ \mathbf{S}_{k,10}^2 \mathbf{S}_{k,10}^2\\ \hline \\ \\ \mathbf{S}_{k,100}^2 \mathbf{S}_{k,100}^2\\ \hline \\ \\ \mathbf{S}_{k,100}^2 \mathbf{S}_{k$	$\begin{array}{c} \mbox{cabrerana} \\ \mbox{E}(S_{30}^2S_{112}^2) = 2.0 \\ \mbox{Axis 30} \\ \mbox{stations} \\ \mbox{fm} \\ \mbox{radiosast} \\ \mbox{w}_k \\ \mbox{rebroadcast} \\ \mbox{fm} \\ \mbox{plants} \\ \mbox{plants} \\ \mbox{plants} \\ \mbox{plants} \\ \mbox{fmowering} \\ \mbox{w}_k \\ \mbox{rosid} \\ \mbox{rosid} \\ \mbox{rosid} \\ \mbox{fmom} \\ \mbox{rosid} \\ \mbo$	$\begin{array}{r} \hline 2237.7\\ \hline \\ \hline \\ Axis 112\\ \hline \\ episode\\ aired\\ show\\ tv\\ \hline \\ \hline \\ \hline \\ \mathbf{S}^2_{k,30}\mathbf{S}^2_{k,112}\\ \hline \\ 1729.4\\ 1635.4\\ 1630.9\\ \hline \\ 1534.6\\ 1441.3\\ 1392.0\\ \hline \\ \hline \\ Axis 121\\ \hline \\ family\\ older\\ household\\ \hline \\ \mathbf{S}^2_{k,44}\mathbf{S}^2_{k,121}\\ \hline \\ 4158.0\\ \hline \end{array}$	$\label{eq:constraint} \hline \begin{array}{c} \mbox{vena} \\ \hline {\rm E}(S_{30}^2S_{123}^2) = 1 \\ \mbox{Axis 30} \\ \mbox{stations} \\ \mbox{fm} \\ \mbox{radio} \\ \mbox{broadcast} \\ \hline \hline \\ \hline $	$\begin{array}{r} 1005.6\\ \hline \\ 570\\ Axis 123\\ \hline \\ newspaper\\ dialy\\ weekly\\ newspapers\\ \hline \\ S^2_{k,30}S^2_{k,213}\\ 1941.7\\ 1343.4\\ 1276.0\\ 1144.2\\ 1116.1\\ 998.0\\ \hline \\ 1144.2\\ 1116.1\\ 998.0\\ \hline \\ 8xis 10.3\\ \hline \\ wavelength\\ light\\ wavelength\\ light\\ wavelength\\ laser\\ \hline \\ S^2_{k,45}S^2_{k,103}\\ \hline \\ 3078.7\\ \hline \end{array}$	$\begin{array}{c} \mbox{cardiology} \\ \hline E(S_{30}^2S_{50}^2) = 1.0 \\ \mbox{Axis } 36 \\ \hline \mbox{htm} \\ \mbox{www} \\ \mbox{htm} \\ \mbox{htm} \\ \mbox{dwww} \\ \mbox{htm} \\ \mbox{geocitics} \\ geo$	$\begin{array}{r} 1447.4\\ 1433.3\\ \hline \\ 388\\ \hline \\ Axis 50\\ \hline \\ site\\ website\\ forum\\ photos\\ \hline \\ \hline \\ 8^{2}_{k,30}8^{2}_{k,50}\\ \hline \\ 1537.9\\ 1230.3\\ 871.2\\ 758.0\\ 644.7\\ 7593.3\\ \hline \\ 644.7\\ 7593.3\\ \hline \\ 616\\ \hline \\ Axis 193\\ \hline \\ rights\\ legislation\\ act\\ laws\\ \hline \\ 8^{2}_{k,49}8^{2}_{k,103}\\ \hline \\ 954.7\\ \hline \\ 954.7\\ \hline \\ 954.7\\ \hline \end{array}$	$\label{eq:constraint} \begin{split} & \frac{\text{urogenital}}{\text{E}(S^2_{30}S^2_{13}) = 1.4} \\ & \text{Axis 36} \\ & \text{http} \\ & \text{www} \\ & \text{htm} \\ & \frac{w_k}{\text{mtu}} \\ & \text{mtu} \\ & \text{stateful} \\ & \text{proxying} \\ & \text{mpls} \\ & \text{vyns} \\ & \text{kleinrock} \\ & \text{E}(S^2_{50}S^2_{101}) = 1.4 \\ & \text{Axis 56} \\ & \text{cpu} \\ & \text{microprocessor} \\ & \text{cpus} \\ & \frac{w_k}{\text{lsi}} \\ \hline \\ & \text{lsi} \end{split}$	$\begin{array}{r} & 1344.7 \\ \hline 19 \\ Axis 73 \\ \hline ip \\ tcp \\ protocol \\ \hline S^2_{k,36}S^2_{k,73} \\ 1425.4 \\ 1352.4 \\ 1324.2 \\ 1264.5 \\ 798.6 \\ 796.1 \\ \hline 693 \\ \hline Axis 101 \\ \hline voltage \\ electrical \\ circuits \\ current \\ \hline S^2_{k,56}S^2_{k,101} \\ \hline 2289.8 \\ \end{array}$	$\label{eq:constraint} \begin{array}{c} \operatorname{effcrent} \\ \operatorname{mitral} \\ \overline{\mathrm{E}(S_{168}^2S_{133}^2) = 4} \\ \overline{\mathrm{E}(S_{168}^2S_{133}^2) = 1} \\ \overline{\mathrm{Axis 168}} \\ \overline{\mathrm{license}} \\ \overline{\mathrm{copyleft}} \\ \overline{\mathrm{magnatune}} \\ \operatorname{rightsholder} \\ \operatorname{rightsholder} \\ \operatorname{rightsholder} \\ \operatorname{rightsholder} \\ \operatorname{rightsholder} \\ \operatorname{rightsholder} \\ \overline{\mathrm{copyrights}} \\ \overline{\mathrm{copyrights}} \\ \overline{\mathrm{coressor}} \\ \overline{\mathrm{copyrights}} \\ \\$	1143.5 Axis 193 rights legislation act laws S ² _{k.108} S ² _{k.108} 1648.0 1131.9 839.7 809.7 676.5 653.3 592 Axis 71 game gameglay multiplayer S ² _{k.56} S ² _{k.71} 1398.9
$\begin{array}{c} \mbox{sommolence} \\ \hline {\rm E}(S^2_{16}S^2_{118}) = 2.12 \\ \mbox{Axis 16} \\ \hline \mbox{blood} \\ \mbox{organs} \\ \mbox{liver} \\ \mbox{kidney} \\ \hline \\ \hline \\ \mbox{wk} \\ \mbox{atrophy} \\ \mbox{hemiparesis} \\ \mbox{axonal} \\ \mbox{dysfunction} \\ \mbox{neuropathy} \\ \mbox{myopathy} \\ \hline \\ \mbox{E}(S^2_{10}S^2_{72}) = 1.70 \\ \mbox{Axis 169} \\ \hline \\ \mbox{female} \\ \mbox{male} \\ \mbox{age} \\ \mbox{infant} \\ \hline \\ \mbox{wk} \\ \mbox{male} \\ \mbox{age} \\ \mbox{yulval} \\ \mbox{fagot} \\ \mbox{spermatozoon} \\ \mbox{frot} \\ \hline \end{array}$	$\begin{array}{r} 1426.1\\ \hline \\ 4 \\ Axis 118\\ \hline \\ disorder\\ mental\\ disorders\\ symptoms\\ \hline \\ \mathbf{S}_{k,16}^2 \mathbf{S}_{k,118}^2\\ 110.2\\ 1877.5\\ 1465.9\\ 1380.2\\ 1300.1\\ 1288.3\\ \hline \\ 1300.1\\ 1288.3\\ \hline \\ \mathbf{S}_{k,109}^2 \mathbf{S}_{k,72}^2\\ \hline \\ \mathbf{sex}\\ hormosexual\\ heterosexual\\ heterosexual\\ \hline \\ \mathbf{S}_{k,109}^2 \mathbf{S}_{k,72}^2\\ 1240.5\\ \hline \\ 1191.4\\ 981.2\\ 961.5\\ 940.6\\ \hline \end{array}$	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	$\begin{array}{r} 2237.7\\ \hline & 2237.7\\ \hline & Axis 112\\ \hline episode\\ aired\\ show\\ tv\\ \hline & \\ \hline \\ \hline$	$\label{eq:constraints} \hline \begin{array}{c} \mbox{vena} \\ \hline E(S_{30}^2S_{123}^2) = 1 \\ \mbox{Axis 30} \\ \hline \mbox{stations} \\ \hline \mbox{fm} \\ \mbox{radio} \\ \hline \mbox{wk} \\ \hline \mbox{canwest} \\ \mbox{ctv} \\ \mbox{wqxr} \\ \mbox{superstation} \\ \hline \mbox{warest} \\ \hline \mbox{canwest} \\ \hline \mbox{ctv} \\ \hline \mbox{qarr} \\ \hline qar$	$\begin{array}{r} 1005.6\\ \hline 1005.6\\ \hline Axis 123\\ \hline newspaper\\ daily\\ weekly\\ newspapers\\ \hline $$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$	$\begin{array}{c} \mbox{cardiology} \\ \hline E(S_{20}^2S_{20}^2) = 1.0 \\ \mbox{Axis 36} \\ \hline \mbox{htm} \\ \mbox{www} \\ \mbox{htm} \\ \mbox{www} \\ \mbox{htm} \\ \mbox{www} \\ \mbox{shtml} \\ \mbox{geocitics} \\ geocitics$	$\begin{array}{r} 1447.4\\ 1433.3\\ \hline \\ 888\\ \hline \\ Axis 50\\ \hline \\ site\\ website\\ forum\\ photos\\ \hline \\ S^2_{k,30}S^2_{k,50}\\ \hline \\ 1537.9\\ 1230.3\\ 871.2\\ 758.0\\ 644.7\\ \hline \\ 7593.3\\ \hline \\ 616\\ \hline \\ Axis 193\\ \hline \\ rights\\ legislation\\ act\\ laws\\ \hline \\ S^2_{k,49}S^2_{k,103}\\ \hline \\ 954.7\\ \hline \\ 823.5\\ \hline \\ 783.1\\ 753.2\\ \hline \\ 784.4\\ \hline \end{array}$	$\label{eq:starsess} \begin{split} & \mbox{urogenital} \\ & \mbox{E}(S^2_{30}S^2_{73}) = 1.4 \\ & \mbox{Axis 36} \\ & \mbox{htm} \\ & \mbox{www} \\ & \mbox{htm} \\ & \mbox{wk} \\ & \mbox{mtu} \\ & \mbox{wk} \\ & \mbox{mtu} \\ & \mbox{stareful} \\ & \mbox{proxying mpls} \\ & \mbox{telering} \\ & \mbox{telering} \\ & \mbox{E}(S^2_{30}S^2_{101}) = 1.4 \\ & \mbox{Axis 56} \\ & \mbox{proxying mpls} \\$	$\begin{array}{r} 1344.7\\ \hline 19\\ \hline Axis 73\\ \hline ip\\ tcp\\ protocol\\ \hline S^2_{k,36}S^2_{k,73}\\ 1352.4\\ 1352.4\\ 1352.4\\ 1352.4\\ 1264.5\\ 796.6\\ \hline 796.1\\ \hline 693\\ \hline Axis 101\\ \hline voltage\\ electrical\\ circuits\\ \hline current\\ \hline S^2_{k,56}S^2_{k,101}\\ \hline S^2_{k,56}S^2_{k,101}\\ \hline 2589.8\\ 2081.5\\ 1901.2\\ 1757.0\\ 1757.0\\ 1582.9\\ \hline \end{array}$	$\begin{array}{l} \mbox{effcrent}\\ \mbox{miral}\\ E(S_{168}^2S_{133}^2) = \\ Axis 168\\ \hline license \\ \mbox{copyleft}\\ \mbox{gpl}\\ \hline licenses \\ \hline \mbox{w}_k \\ \hline \mbox{copyleft}\\ copyleft$	$\begin{array}{r llllllllllllllllllllllllllllllllllll$
$\begin{array}{c} \mbox{sommolence} \\ \hline {\rm E}(S^2_{16}S^2_{118}) = 2.12 \\ \mbox{Axis 16} \\ \hline \mbox{blood} \\ \mbox{organs} \\ \mbox{liver} \\ \mbox{kidney} \\ \hline \mbox{wk} \\ \mbox{atrophy} \\ \mbox{hemiparesis} \\ \mbox{axonal} \\ \mbox{dysfunction} \\ \mbox{neuropathy} \\ \mbox{myopathy} \\ \hline \mbox{E}(S^2_{16}0S^2_{12}) = 1.70 \\ \mbox{Axis 169} \\ \hline \mbox{female} \\ \mbox{male} \\ \mbox{age} \\ \mbox{infant} \\ \hline \mbox{wk} \\ \mbox{male} \\ \mbox{vulval} \\ \mbox{faggot} \\ \mbox{spermatozoon} \\ \mbox{frot} \\ \mbox{tribadism} \\ \hline \end{array}$	$\begin{array}{r} 1426.1\\ \hline \\ 4\\ \hline \\ 4\\ \hline \\ 4\\ \hline \\ 13\\ \hline \\ 13\\ \hline \\ 14\\ \hline \\ 13\\ \hline \\ 12\\ \hline \\ 13\\ \hline \\ 12\\ \hline \\ 13\\ \hline \\ 12\\ \hline \\ 13\\ \hline 13$	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	$\begin{array}{r} 2237.7\\ \hline & 2237.7\\ \hline & Axis 112\\ \hline episode\\ aired\\ show\\ tv\\ \hline \\ \hline \\ S^2_{k,30}S^2_{k,112}\\ \hline \\ 1635.4\\ 1635.4\\ 1600.9\\ 1534.6\\ 1441.3\\ 1392.0\\ \hline \\ \hline \\ Axis 121\\ \hline \\ families\\ family\\ older\\ \hline \\ household\\ \hline \\ \hline \\ S^2_{k,44}S^2_{k,121}\\ \hline \\ 4158.0\\ 0de1\\ \hline \\ 3652.5\\ 3637.6\\ 3636.1\\ 3295.0\\ \hline \end{array}$	$\begin{tabular}{ c c c } \hline vena \\ \hline E(S^2_{30}S^2_{123}) = 1 \\ \hline Axis 30 \\ \hline stations \\ fm \\ radio \\ broadcast \\ \hline w_k \\ \hline canwest \\ ctv \\ wqxr \\ superstation \\ wanbao \\ aor \\ \hline canwest \\ ctv \\ wqxr \\ superstation \\ wanbao \\ aor \\ \hline (Uambed arrow arr$	$\begin{array}{r} 1005.6\\ \hline \\ 1570\\ \hline Axis 123\\ \hline newspaper\\ \hline daily\\ weekly\\ newspapers\\ \hline \\ $S_{k,30}^2S_{k,213}^2\\ 1941.7\\ 1343.4\\ 1276.0\\ 01144.2\\ 1116.1\\ 998.0\\ \hline \\ .765\\ \hline \\ Axis 103\\ \hline \\ wavelength\\ light\\ wavelength\\ light\\ wavelength\\ light\\ \hline \\ $S_{k,45}^2S_{k,103}^2\\ \hline \\ $S_{k,45}^2S_{k,103}^2\\ 1648.3\\ 1567.6\\ 1435.1\\ 1414.1\\ \hline \end{array}$	$\begin{array}{c} \mbox{cardiology} \\ \hline E(S_{29}^2S_{20}^2) = 1.0 \\ \mbox{Axis 36} \\ \hline \mbox{htm} \\ \mbox{htm} \\ \mbox{htm} \\ \mbox{tml} \\ \mbox{geocities} \\ \mbox{jeancocteau} \\ \mbox{If} \\ \mbox{uchicago} \\ \mbox{artchive} \\ \hline \mbox{E}(S_{29}^2S_{193}^2) = 1 \\ \mbox{Axis 49} \\ \mbox{court} \\ \mbox{trial} \\ \mbox{uchicago} \\ \mbox{trial} \\ \mbo$	$\begin{array}{r} 1447.4\\ 1433.3\\ \hline \\ 888\\ Axis 50\\ \hline \\ site\\ website\\ forum\\ photos\\ \hline \\ 1537.9\\ 1230.3\\ 871.2\\ 758.0\\ 644.7\\ 593.3\\ \hline \\ 88.49\\ \hline$	$\label{eq:stars} \begin{split} & \text{urogenital} \\ & \text{E}(S^2_{30}S^2_{73}) = 1.4 \\ & \text{Axis } 36 \\ & \text{http} \\ & \text{www} \\ & \text{htm} \\ & \\ & \text{www} \\ & \text{htm} \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ $	$\begin{array}{r} 1344.7\\ \hline 19\\ \hline Axis 73\\ \hline ip\\ tcp\\ protocols\\ protocol\\ \hline S^2_{k,36}S^2_{k,73}\\ 1352.4\\ 1352.4\\ 1352.4\\ 1352.4\\ 1352.4\\ 1264.5\\ 796.6\\ \hline 796.1\\ \hline 001\\ \hline 001age\\ electrical\\ circuits\\ current\\ \hline S^2_{k,56}S^2_{k,101}\\ \hline S^2_{k,56}S^2_{k,101}\\ \hline 2589.8\\ 2081.5\\ 1901.2\\ 1757.0\\ 01582.9\\ 1554.5\\ \hline \end{array}$	$\begin{array}{l} \mbox{effcrent}\\ \mbox{miral}\\ E(S_{168}^2S_{133}^2) = \\ Axis 168\\ \mbox{license}\\ \mbox{copyleft}\\ \mbox{gpl}\\ \mbox{licenses}\\ \mbox{copyleft}\\ $	$\begin{array}{r llllllllllllllllllllllllllllllllllll$
$\begin{array}{c} \mbox{sommolence} \\ \hline {\rm E}(S^2_{16}S^2_{118}) = 2.12 \\ \mbox{Axis 16} \\ \hline \mbox{bod} \\ \mbox{organs} \\ \mbox{liver} \\ \mbox{kidney} \\ \hline \mbox{wk} \\ \mbox{atrophy} \\ \mbox{hemiparesis} \\ \mbox{axonal} \\ \mbox{dysfunction} \\ \mbox{neuropathy} \\ \mbox{myopathy} \\ \hline \mbox{myopathy} \\ \mbox{female} \\ \mbox{male} \\ \mbox{age} \\ \mbox{infant} \\ \hline \mbox{male} \\ \mbox{vulval} \\ \mbox{faggot} \\ \mbox{spermatozoon} \\ \mbox{frot} \\ \mbox{tribadism} \\ \hline \mbox{E}(S^2_{188}S^2_{119}) = 1.4 \\ \mbox{Axis 188} \\ \hline \mbox{male} \\ \mbox{axis 188} \\ \hline \mbox{figst} \\ \m$	$\begin{array}{r} 1426.1\\ \hline \\ 4\\ Axis 118\\ \hline \\ disorder\\ symptoms\\ \hline \\ \mathbf{S}_{k,16}^2 \mathbf{S}_{k,118}^2\\ \hline \\ 110.2\\ 1877.5\\ 1465.9\\ 1380.2\\ 1300.1\\ 1288.3\\ \hline \\ 1380.2\\ 1300.1\\ 1288.3\\ \hline \\ \mathbf{S}_{k,169}^2 \mathbf{S}_{k,72}^2\\ \hline \\ \mathbf{S}_{k,169}^2 \mathbf{S}_{k,72}^2\\ \hline \\ 1240.5\\ 1191.4\\ 981.5\\ 940.6\\ 843.5\\ \hline \\ 442\\ \underline{Axis 119} \\ \hline \end{array}$	$\begin{array}{c} \mbox{cabrerana} \\ \mbox{E}(S_{30}^2S_{112}^2) = 2.0 \\ \mbox{Axis 30} \\ \mbox{stations} \\ \mbox{fm} \\ \mbox{radiosast} \\ \mbox{wk} \\ \mbox{rebroadcast} \\ \mbox{fm} \\ \mbox{etrans} \\ \mbox{etrans} \\ \mbox{wk} \\ \mbox{rebroadcast} \\ \mbox{fm} \\ \mbox{etrans} \\ \mbox{fm} \\ \mbo$	$\begin{array}{r} \hline 2237.7\\ \hline \\ \hline \\ Axis 112\\ \hline \\ episode\\ aired\\ show\\ \hline \\ \hline$	$\label{eq:starsest} \begin{split} & \frac{\text{vena}}{\text{E}(S_{30}^2S_{123}^2) = 1} \\ & \frac{\text{Axis 30}}{\text{stations}} \\ & \text{fm} \\ & \text{radio} \\ & \text{broadcast} \\ & \frac{w_k}{\text{ctv}} \\ & \text{canwest} \\ & \text{ctv} \\ & \text{wanbao} \\ & \text{aor} \\ & \text{canwest} \\ & \text{ctv} \\ & \text{quantum} \\ & \text{particles} \\ & \text{particles} \\ & \frac{w_k}{\text{mesons}} \\ & \frac{w_k}{\text{mesons}} \\ & \text{gluons} \\ & \text{photon} \\ & \text{photon} \\ & \text{photons} \\ & \text{synchroton} \\ & \text{isospin} \\ & \text{E}(S_{67}^2S_{113}^2) = 1 \\ & \text{Axis 67} \end{split}$	$\begin{array}{r c c c c c c c c c c c c c c c c c c c$	$\begin{array}{c} \mbox{cardiology} \\ \hline E(S_{39}^2S_{50}^2) = 1.0 \\ \mbox{Axis 36} \\ \hline \mbox{htm} \\ \mbox{htm} \\ \mbox{htm} \\ \mbox{htm} \\ \mbox{gocitics} \\ goci$	$\begin{array}{r} 1447.4\\ 1433.3\\ \hline \\ 143.3\\ \hline \\ 388\\ \hline \\ axis 50\\ \hline \\ site \\ website \\ forum \\ photos\\ \hline \\ \hline \\ 8^{2}_{k,30}8^{2}_{k,50}\\ \hline \\ 1537.9\\ 1230.3\\ 871.2\\ 758.0\\ 644.7\\ 759.3\\ \hline \\ 1230.3\\ 871.2\\ 758.0\\ 644.7\\ 759.3\\ \hline \\ \\ 759.3\\ \hline \\ \\ 8^{2}_{k,49}8^{2}_{k,103}\\ \hline \\ \\ \hline \\ \\ 8^{2}_{k,49}8^{2}_{k,103}\\ \hline \\ \\ \hline \\ \\ 8^{2}_{k,49}8^{2}_{k,103}\\ \hline \\ \\ \hline \\ \hline \\ \hline \\ \\ \hline \\ \hline \\ \\ \hline \\ \hline \\ \hline \\ \hline \\ \hline \\ \\ \hline \\ \hline \\ \\ \hline \\ \hline \\ \hline \\ \hline \\ \hline \\ \\ \hline \hline \\ \hline \\ \hline \\ \hline \\ \hline \hline \\ \hline \\ \hline \\ \hline \\ \hline \\ \hline \hline \\ \hline \\ \hline \hline \\ \hline \\ \hline \\ \hline \\ \hline \hline \\ \hline \\ \hline \hline \\ \hline \\ \hline \hline \hline \\ \hline \hline \\ \hline \hline \hline \\ \hline \hline \hline \\ \hline \hline \hline \\ \hline \hline \hline \hline \\ \hline \hline \hline \\ \hline \hline \hline \hline \\ \hline \hline \hline \hline \hline \\ \hline \\ \hline \hline$	$eq:started_st$	$\begin{array}{r} 1344.7\\ \hline 19\\ Axis 73\\ \hline ip\\ tcp\\ protocols\\ protocol\\ \hline S^2_{k,36}S^2_{k,73}\\ 1425.4\\ 1352.4\\ 1352.4\\ 1352.4\\ 1264.5\\ 798.6\\ 796.1\\ \hline 693\\ \hline Axis 101\\ \hline voltage\\ electrical\\ circuits\\ current\\ \hline S^2_{k,56}S^2_{k,101}\\ \hline S^2_{k,55}S^2_{k,101}\\ \hline 2589.8\\ 2081.5\\ 1901.2\\ 1554.5\\ 1901.2\\ 1554.5\\ \hline 1904.2\\ \hline 1554.5\\ \hline 1904.2\\ \hline 1554.5\\ \hline$	$\begin{array}{c} \text{effrent}\\ \text{mitral}\\ \hline \text{E}(S_{108}^2S_{133}^2) = \\ Axis 168\\ \hline \text{license}\\ \text{copyleft}\\ \hline \text{gpl}\\ \hline \text{licenses}\\ \hline w_k\\ \hline \text{copyleft}\\ \text{magnatune}\\ \text{rightsholder}\\ \text{rightsholder}\\ \text{rightsholder}\\ \text{rightsholder}\\ \text{rightsholder}\\ \text{rightsholder}\\ \text{rightsholder}\\ \hline \text{rightsholder}\\ \text{rightsholder}$	1143.5 1.495 Axis 193 rights legislation act laws S ² _{k,168} S ² _{k,193} 648.0 1131.9 839.7 676.5 653.3 592 Axis 71 game games gamePay 1398.9 1388.5 1349.0 1128.1 111.6 1097.0 1.641 Axis 119
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	$\begin{array}{r} 1426.1\\ \hline \\ 44\\ \hline Axis 118\\ \hline \\ disorder\\ mental\\ disorders\\ symptoms\\ \hline \\ \hline$	$\begin{array}{c} \mbox{cabrerana} \\ \mbox{cabrerana} \\ \mbox{E}(S_{30}^2S_{112}^2) = 2.0 \\ \mbox{Axis 30} \\ \mbox{stations} \\ \mbox{fm} \\ \mbox{radios} \\ \mbox{models} \\ \mbox{was} \\ \mbox{radios} \\ \mbox{wk} \\ \mbox{rebroadcast} \\ \mbox{wk} \\ \mbox{rebroadcast} \\ \mbox{rebroadcast} \\ \mbox{wk} \\ \mbox{rebroadcast} \\ rebroadca$	$\begin{array}{r} 2237.7\\ \hline & 2237.7\\ \hline & Axis 112\\ \hline episode \\ aired \\ show \\ tv \\ \hline & S^2_{k,30}S^2_{k,112}\\ \hline & 1729.4\\ \hline & 1635.4\\ \hline & 1609.9\\ \hline & 1534.6\\ \hline & 1441.3\\ \hline & 1392.0\\ \hline & 006\\ \hline & Axis 121\\ \hline families \\ family \\ older \\ \hline & household \\ \hline & S^2_{k,44}S^2_{k,121}\\ \hline & 4158.0\\ \hline & 3637.6\\ \hline $	$\label{eq:second} \hline \begin{array}{c} \mbox{vena} \\ \hline E(S_{30}^2S_{123}^2) = 1 \\ \mbox{Axis 30} \\ \hline \mbox{stations} \\ \hline \mbox{fm} \\ \hline \mbox{radio} \\ \hline \mbox{wk} \\ \hline \mbox{canwest} \\ \mbox{ctv} \\ \hline \mbox{wks} \\ \mbox{ctv} \\ \hline \mbox{wavrs} \\ \mbox{superstation} \\ \hline \mbox{wavrs} \\ \hline \mbox{superstation} \\ \hline supers$	$\begin{array}{r} 1005.6\\ \hline 1005.6\\ \hline Axis 123\\ \hline newspaper\\ daily\\ weekly\\ newspapers\\ \hline $$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$	$\begin{array}{c} \mbox{cardiology} \\ \hline E(S_{45}^2S_{50}^2) = 1.0 \\ \mbox{Axis 36} \\ \hline \mbox{htm} \\ \mbox{htm} \\ \mbox{www} \\ \mbox{htm} \\ \mbox{www} \\ \mbox{shtml} \\ \mbox{geocitics} \\ \mbox{jeancocteau} \\ \mbox{Ifc} \\ \mbox{uchago} \\ \mbox{artchive} \\ \hline \mbox{E}(S_{49}^2S_{103}^2) = 1 \\ \mbox{Axis 49} \\ \mbox{court} \\ \mbox{judge} \\ \mbox{courts} \\ \mbox{trial} \\ \mbox{maxis approx} \\ \mbox{habeas} \\ \mbox{declaratory} \\ \mbox{conservatorship} \\ \mbox{waives} \\ \mbox{laches} \\ \mbox{talionis} \\ \hline \mbox{E}(S_{47}^2S_{103}^2) = 1 \\ \mbox{Axis 67} \\ \mbox{blue} \\ \hline \end{array}$	$\begin{array}{r} 1447.4\\ 1433.3\\ \hline \\ 143.3\\ \hline \\ site\\ website\\ forum\\ photos\\ \hline \\ \hline \\ \hline \\ \hline \\ \\ \\ \\ \hline \\$	$eq:started_st$	$\begin{array}{r} 1344.7\\ \hline 19\\ \hline Axis 73\\ \hline ip\\ tcp\\ protocol\\ \hline S^2_{k,30}S^2_{k,73}\\ 1425.4\\ 1352.4\\ 1352.4\\ 1264.5\\ 798.6\\ 796.1\\ \hline 603\\ \hline Axis 101\\ \hline voltage\\ electrical\\ circuits\\ current\\ \hline S^2_{k,50}S^2_{k,101}\\ 2589.8\\ 2081.5\\ 1901.2\\ 1757.0\\ 1582.9\\ 1554.5\\ \hline .800\\ \hline Axis 103\\ \hline wavelength\\ \hline \end{array}$	$\begin{array}{l} \mbox{efficient}\\ \mbox{efficient}\\ \mbox{if real}\\ \hline E(S_{168}^2S_{133}^2) = \\ \mbox{Axis 168}\\ \hline license \\ \mbox{copyleft}\\ \mbox{gpl}\\ \mbox{licenses}\\ \hline \mbox{w}_k \\ \mbox{copyleft}\\ \mbox{copyleft}\\ \mbox{copyrights}\\ \mbox{circumvention}\\ \hline E(S_{56}^2S_{11}^2) = 1. \\ \mbox{Axis 56}\\ \mbox{copy}\\ \mbox{gpl}\\ \mbox{axis 56}\\ \mbox{gpl}\\ \mbox{gpl}\\ \mbox{axis 56}\\ \mbox{gpl}\\ \mbox{gpl}\\$	$\begin{array}{r llllllllllllllllllllllllllllllllllll$
$\begin{array}{c} \mbox{sommolence} \\ \hline {\rm E}(S^2_{16}S^2_{118}) = 2.12 \\ \mbox{Axis 16} \\ \hline \mbox{bod} \\ \mbox{organs} \\ \mbox{liver} \\ \mbox{kidney} \\ \hline \mbox{wk} \\ \mbox{atrophy} \\ \mbox{hemiparesis} \\ \mbox{axonal} \\ \mbox{dysfunction} \\ \mbox{neuropathy} \\ \mbox{myopathy} \\ \hline \mbox{myopathy} \\ \mbox{female} \\ \mbox{male} \\ \mbox{age} \\ \mbox{infant} \\ \hline \mbox{male} \\ \mbox{vulval} \\ \mbox{faggot} \\ \mbox{spermatozoon} \\ \mbox{frot} \\ \mbox{tribadism} \\ \hline \mbox{E}(S^2_{188}S^2_{119}) = 1.4 \\ \mbox{Axis 188} \\ \hline \mbox{male} \\ \mbox{axis 188} \\ \hline \mbox{figst} \\ \m$	$\begin{array}{r} 1426.1\\ \hline \\ 4\\ Axis 118\\ \hline \\ disorder\\ symptoms\\ \hline \\ \mathbf{S}_{k,16}^2 \mathbf{S}_{k,118}^2\\ \hline \\ 110.2\\ 1877.5\\ 1465.9\\ 1380.2\\ 1300.1\\ 1288.3\\ \hline \\ 1380.2\\ 1300.1\\ 1288.3\\ \hline \\ \mathbf{S}_{k,169}^2 \mathbf{S}_{k,72}^2\\ \hline \\ \mathbf{S}_{k,169}^2 \mathbf{S}_{k,72}^2\\ \hline \\ 1240.5\\ 1191.4\\ 981.5\\ 940.6\\ 843.5\\ \hline \\ 442\\ \underline{Axis 119} \\ \hline \end{array}$	$\begin{array}{c} \mbox{cabrerana} \\ \mbox{E}(S_{30}^2S_{112}^2) = 2.0 \\ \mbox{Axis 30} \\ \mbox{stations} \\ \mbox{fm} \\ \mbox{radiosast} \\ \mbox{wk} \\ \mbox{rebroadcast} \\ \mbox{fm} \\ \mbox{etrans} \\ \mbox{etrans} \\ \mbox{wk} \\ \mbox{rebroadcast} \\ \mbox{fm} \\ \mbox{etrans} \\ \mbox{fm} \\ \mbo$	$\begin{array}{r} \hline 2237.7\\ \hline \\ \hline \\ Axis 112\\ \hline \\ episode\\ aired\\ show\\ \hline \\ \hline$	$\label{eq:starsest} \begin{split} & \frac{\text{vena}}{\text{E}(S_{30}^2S_{123}^2) = 1} \\ & \frac{\text{Axis 30}}{\text{stations}} \\ & \text{fm} \\ & \text{radio} \\ & \text{broadcast} \\ & \frac{w_k}{\text{ctv}} \\ & \text{canwest} \\ & \text{ctv} \\ & \text{wanbao} \\ & \text{aor} \\ & \text{canwest} \\ & \text{ctv} \\ & \text{quantum} \\ & \text{particles} \\ & \text{particles} \\ & \frac{w_k}{\text{mesons}} \\ & \frac{w_k}{\text{mesons}} \\ & \text{gluons} \\ & \text{photon} \\ & \text{photon} \\ & \text{photons} \\ & \text{synchroton} \\ & \text{isospin} \\ & \text{E}(S_{67}^2S_{113}^2) = 1 \\ & \text{Axis 67} \end{split}$	$\begin{array}{r c c c c c c c c c c c c c c c c c c c$	$\begin{array}{c} \mbox{cardiology} \\ \hline E(S_{39}^2S_{50}^2) = 1.0 \\ \mbox{Axis 36} \\ \hline \mbox{htm} \\ \mbox{htm} \\ \mbox{htm} \\ \mbox{htm} \\ \mbox{gocitics} \\ goci$	$\begin{array}{r} 1447.4\\ 1433.3\\ \hline \\ 143.3\\ \hline \\ 388\\ \hline \\ axis 50\\ \hline \\ site \\ website \\ forum \\ photos\\ \hline \\ \hline \\ 8^{2}_{k,30}8^{2}_{k,50}\\ \hline \\ 1537.9\\ 1230.3\\ 871.2\\ 758.0\\ 644.7\\ 759.3\\ \hline \\ 1230.3\\ 871.2\\ 758.0\\ 644.7\\ 759.3\\ \hline \\ \\ 759.3\\ \hline \\ \\ 8^{2}_{k,49}8^{2}_{k,103}\\ \hline \\ \\ \hline \\ \\ 8^{2}_{k,49}8^{2}_{k,103}\\ \hline \\ \\ \hline \\ \\ 8^{2}_{k,49}8^{2}_{k,103}\\ \hline \\ \\ \hline \\ \hline \\ \hline \\ \\ \hline \\ \hline \\ \\ \hline \\ \hline \\ \hline \\ \hline \\ \hline \\ \\ \hline \\ \hline \\ \\ \hline \\ \hline \\ \hline \\ \hline \\ \hline \\ \\ \hline \hline \\ \hline \hline \\ \hline \\ \hline \\ \hline \\ \hline \hline \\ \hline \\ \hline \hline \\ \hline \\ \hline \\ \hline \\ \hline \\ \hline \\ \hline \hline \\ \hline \\ \hline \\ \hline \hline \\ \hline \\ \hline \hline \\ \hline \\ \hline \\ \hline \hline \\ \hline \hline \\ \hline \hline \\ \hline \\ \hline \hline \hline \hline \hline \\ \hline \hline \hline \hline \hline \\ \hline \hline \hline \hline \hline \hline \hline \hline \\ \hline \hline$	$eq:started_st$	$\begin{array}{r} 1344.7\\ \hline 19\\ Axis 73\\ \hline ip\\ tcp\\ protocols\\ protocol\\ \hline S^2_{k,36}S^2_{k,73}\\ 1425.4\\ 1352.4\\ 1352.4\\ 1352.4\\ 1264.5\\ 798.6\\ 796.1\\ \hline 693\\ \hline Axis 101\\ \hline voltage\\ electrical\\ circuits\\ current\\ \hline S^2_{k,56}S^2_{k,101}\\ \hline S^2_{k,55}S^2_{k,101}\\ \hline 2589.8\\ 2081.5\\ 1901.2\\ 1554.5\\ 1901.2\\ 1554.5\\ \hline 1904.2\\ \hline 1554.5\\ \hline$	$\begin{array}{c} \text{effrent}\\ \text{mitral}\\ \hline \text{E}(S_{108}^2S_{133}^2) = \\ Axis 168\\ \hline \text{license}\\ \text{copyleft}\\ \hline \text{gpl}\\ \hline \text{licenses}\\ \hline w_k\\ \hline \text{copyleft}\\ \text{magnatune}\\ \text{rightsholder}\\ \text{rightsholder}\\ \text{rightsholder}\\ \text{rightsholder}\\ \text{rightsholder}\\ \text{rightsholder}\\ \text{rightsholder}\\ \hline \text{rightsholder}\\ \text{rightsholder}$	1143.5 1.495 Axis 193 rights legislation act laws S ² _{k,168} S ² _{k,193} 648.0 1131.9 839.7 676.5 653.3 592 Axis 71 game games gamePay 1398.9 1388.5 1349.0 1128.1 111.6 1097.0 1.641 Axis 119
$\begin{array}{c} \mbox{sommolence} \\ \hline {\rm E}(S^2_{16}S^2_{118}) = 2.12\\ \mbox{Axis 16} \\ \hline \mbox{bod} \\ \mbox{organs} \\ \mbox{liver} \\ \mbox{kidney} \\ \hline \mbox{wk} \\ \mbox{atrophy} \\ \mbox{hemiparesis} \\ \mbox{axonal} \\ \mbox{dysfunction} \\ \mbox{neuropathy} \\ \mbox{molecular} \\ \mbox{molecular} \\ \mbox{dysfunction} \\ \mbox{neuropathy} \\ \mbox{molecular} \\ \mbox{molecular} \\ \mbox{figures} \\ \mbox{figures} \\ \mbox{figures} \\ \mbox{figures} \\ \mbox{male} \\ \mbox{valval} \\ \mbox{faggot} \\ \mbox{spermatozoon} \\ \mbox{frot} \\ \mbox{tribadism} \\ \mbox{figss} \\ \mbox{figss} \\ \mbox{figures} \\ \mbox{figss} \\ \mbox{figss} \\ \mbox{figss} \\ \mbox{figss} \\ \mbox{figss} \\ \mbox{tribadism} \\ \mbox{figss} \\ \mbo$	$\begin{array}{r} 1426.1\\ \hline \\ 4\\ Axis 118\\ \hline \\ disorder\\ mental\\ disorders\\ symptoms\\ \hline \\ \mathbf{S}_{k,10}^2 \mathbf{S}_{k,118}^2\\ 110.2\\ 1877.5\\ 1465.9\\ 1380.2\\ 1300.1\\ 1288.3\\ \hline \\ 1300.1\\ 1288.3\\ \hline \\ 1300.1\\ 1288.3\\ \hline \\ \mathbf{S}_{k,109}^2 \mathbf{S}_{k,72}^2\\ \hline \\ \mathbf{S}_{k,109}^2 \mathbf{S}_{k,72}^2\\ \hline \\ \mathbf{S}_{k,109}^2 \mathbf{S}_{k,72}^2\\ \hline \\ 1240.5\\ 1191.4\\ 981.2\\ 961.5\\ 940.6\\ 843.5\\ \hline \\ 42\\ \mathbf{Axis 119}\\ \hline \\ \mathbf{combustion}\\ \mathbf{diesel}\\ \end{array}$	$\label{eq:cabrerana} \hline cabrerana \\ \hline constraints con$	$\begin{array}{r c c c c c c c c c c c c c c c c c c c$	$\label{eq:statistical_states} \hline \begin{array}{c} \text{vena} \\ \overline{\mathrm{E}(S_{30}^2 S_{123}^2)} = 1 \\ \mathrm{Axis \ 30} \\ \mathrm{stations} \\ \mathrm{fm} \\ \mathrm{radio} \\ \overline{\mathrm{fm}} \\ \mathrm{radio} \\ \overline{\mathrm{val}} \\ \overline{\mathrm{val}} \\ \overline{\mathrm{canwest}} \\ \mathrm{ctv} \\ \mathrm{wk} \\ \mathrm{ctv} \\ \mathrm{wqxr} \\ \mathrm{superstation} \\ \mathrm{wanbao} \\ \mathrm{aor} \\ \overline{\mathrm{e}(S_{45}^2 S_{103}^2)} = 1 \\ \mathrm{Axis \ 45} \\ \overline{\mathrm{quantum}} \\ \mathrm{particles} \\ \mathrm{particle} \\ \mathrm{physics} \\ \overline{\mathrm{wk}} \\ \overline{\mathrm{mesons}} \\ \mathrm{gluons} \\ \mathrm{photon} \\ \mathrm{photons} \\ \mathrm{synchrotron} \\ \mathrm{isospin} \\ \overline{\mathrm{E}(S_{67}^2 S_{111}^2)} = 1 \\ \overline{\mathrm{Axis \ 67}} \\ \overline{\mathrm{blue}} \\ \mathrm{white} \\ \end{array}$	$\begin{array}{r c c c c c c c c c c c c c c c c c c c$	$\begin{array}{c} \mbox{cardiology} \\ \hline E(S_{49}^2S_{50}^2) = 1.0 \\ \mbox{Axis 36} \\ \hline \mbox{htm} \\ \mbox{htm} \\ \mbox{htm} \\ \mbox{html} \\ \mbox{geocities} \\ \mbox{jeancocteau} \\ \mbox{If} \\ \mbox{uchicago} \\ \mbox{artchive} \\ \hline \mbox{E}(S_{49}^2S_{193}^2) = 1 \\ \mbox{Axis 49} \\ \mbox{court} \\ \mbox{ideclaratory} \\ \mbox{courts} \\ \mbox{trial} \\ \mbox{wk} \\ \hline \mbox{hacsa declaratory} \\ \mbox{conservatorship} \\ \mbox{waves} \\ \mbox{laches} \\ \mbox{talionis} \\ \hline \mbox{E}(S_{67}^2S_{103}^2) = 1 \\ \mbox{Axis 67} \\ \hline \mbox{bulk} \\ \mbox{conservatorship} \\ \mbox{waits 67} \\ \hline \mbox{bulk} \\ bul$	$\begin{array}{r} 1447.4\\ 1433.3\\ \hline \\ 143.3\\ \hline \\ 388\\ \hline \\ Axis 50\\ \hline \\ site\\ website\\ forum\\ photos\\ \hline \\ 1537.9\\ 1230.3\\ 871.2\\ 758.0\\ 644.7\\ 793.3\\ \hline \\ rights\\ legislation\\ act\\ laws\\ \hline \\ \hline \\ 8^{2}_{k,39} 8^{2}_{k,103}\\ \hline \\ 8^{2}_{k,19} 8^{2}_{k,103}\\ \hline \\ 8^{2}_{k,19} 8^{2}_{k,103}\\ \hline \\ 8^{2}_{k,19} 8^{2}_{k,103}\\ \hline \\ 8^{2}_{k,19} 8^{2}_{k,103}\\ \hline \\ 8^{2}_{k,10} 8^{2}_{k,103}\\ \hline \\ 705\\ \hline \\ Axis 103\\ \hline \\ wavelength\\ \\ light\\ \hline \end{array}$	$\label{eq:stars} \begin{split} & \text{urogenital} \\ & \text{E}(S^2_{30}S^2_{73}) = 1.4 \\ & \text{Axis } 36 \\ & \text{http} \\ & \text{www} \\ & \text{htm} \\ & \hline \\ & w_k \\ & \text{mtu} \\ & \text{stareful} \\ & \text{proxying} \\ & \text{mpls} \\ & \text{vpns} \\ & \text{kleinrock} \\ & \text{E}(S^2_{30}S^2_{101}) = 1. \\ & \text{Axis } 56 \\ & \text{cpu} \\ & \text{microelectronic} \\ & \text{starm} \\ & \text{mosfet} \\ & \text{voltages} \\ & \text{microcontrollerss} \\ & \text{E}(S^2_{101}S^2_{103}) = 1 \\ & \text{Axis } 101 \\ & \text{voltagec} \\ & \text{electrical} \\ \end{split}$	$\begin{array}{r} 1344.7\\ \hline 19\\ Axis 73\\ \hline ip\\ tcp\\ protocols\\ \hline S^2_{k,36}S^2_{k,73}\\ 1324.2\\ 1352.4\\ 1352.4\\ 1352.4\\ 1324.2\\ 1264.5\\ 796.6\\ \hline 796.1\\ \hline \hline voltage\\ electrical\\ circuits\\ current\\ \hline S^2_{k,56}S^2_{k,101}\\ \hline S^2_{k,56}$	$\begin{array}{l} \mbox{efficient}\\ \mbox{mitral}\\ \hline E(S_{106}^2S_{133}^2) = Axis 168\\ \hline E(S_{106}^2S_{133}^2) = I_{10}\\ \hline E(S_{10}^2S_{10}^2S_{10}^2) = I_{10}\\ \hline E(S_{10}^2S_{11}^2) = I_{10}\\ \hline E(S_{10}^2S_{110}^2) = I_{10}\\ \hline E(S_{10}^2S_{110}^$	$\begin{array}{r c c c c c c c c c c c c c c c c c c c$
$\begin{array}{l} \mbox{sommolence} \\ \hline E(S_{16}^2S_{118}^2) = 2.12 \\ \mbox{Axis 16} \\ \hline \mbox{blood} \\ \mbox{organs} \\ \mbox{liver} \\ \mbox{kidney} \\ \hline \mbox{wk} \\ \hline \mbox{atrophy} \\ \mbox{atrophy} \\ \mbox{hemiparesis} \\ \mbox{axonal} \\ \mbox{dysfunction} \\ \mbox{neuropathy} \\ \mbox{myopathy} \\ \hline \mbox{E}(S_{169}^2S_{72}^2) = 1.70 \\ \mbox{Axis 169} \\ \mbox{female} \\ \mbox{male} \\ \mbox{vulval} \\ \mbox{faggot} \\ \mbox{spermatozoon} \\ \mbox{frot} \\ \mbox{tribadism} \\ \hline \mbox{E}(S_{169}^2S_{119}^2) = 1.40 \\ \mbox{Axis 188} \\ \hline \mbox{less} \\ \hline \mbox{less} \\ \mbox{less} \\ \mbox{less} \\ \hline less$	$\begin{array}{r} 1426.1\\ \hline \\ 44\\ \hline Axis 118\\ \hline disorder\\ mental\\ disorders\\ symptoms\\ \hline \\ $\mathbf{S}_{k,10}^2\mathbf{S}_{k,118}^2\\ 1877.5\\ 1465.9\\ 1380.2\\ 1300.1\\ 1288.3\\ 1288.3\\ $	$\begin{array}{c} \mbox{cabrerana} \\ \mbox{E}(S_{30}^2S_{112}^2) = 2.0 \\ \mbox{Axis 30} \\ \mbox{Axis 30} \\ \mbox{fm} \\ \mbox{fm} \\ \mbox{fm} \\ \mbox{fm} \\ \mbox{fm} \\ \mbox{rebroadcast} \\ \mbox{wk} \\ \mbox{rebroadcast} \\ \mbox{fm} \\ \mbox{wk} \\ \mbox{rebroadcast} \\ \mbox{fm} \\ \mbox{wk} \\ \mbox{fm} \\ \mb$	$\begin{array}{r} 2237.7\\ \hline & 2237.7\\ \hline & Axis 112\\ episode\\ aired\\ show\\ tv\\ \hline & \mathbf{S}^2_{k,30}\mathbf{S}^2_{k,112}\\ \hline & 1729.4\\ 1635.4\\ 1600.9\\ 1534.6\\ 1441.3\\ 1392.0\\ \hline & \mathbf{Axis 121}\\ families\\ family\\ older\\ household\\ \hline & \mathbf{S}^2_{k,44}\mathbf{S}^2_{k,121}\\ \hline & 4158.0\\ 4064.1\\ 3652.5\\ 3637.6\\ 3636.1\\ 3295.0\\ \hline & 3637.6\\ 3636.1\\ 3295.0\\ \hline & 3637.6\\ 3636.1\\ 3295.0\\ \hline & 3637.6\\$	$\label{eq:stational} \hline \begin{array}{ c c c } \hline vena \\ \hline E(S_{30}^2 S_{123}^2) = 1 \\ \hline Axis 30 \\ \hline stations \\ fm \\ radio \\ fm \\ radio \\ \hline mu \\ radio \\ radio$	$\begin{array}{r} 1005.6\\ \hline \\ 1005.6\\ \hline Axis 123\\ \hline average and a set of the $	$\begin{array}{c} \mbox{cardiology} \\ E(S_{45}^2S_{40}^2) = 1.0 \\ Axis 36 \\ http \\ www \\ htm \\ html \\ wk \\ shtml \\ geocitics \\ jeancoteau \\ Ifc \\ uchicago \\ artchive \\ igeocitics \\ jeancoteau \\ Ifc \\ uchicago \\ artchive \\ E(S_{45}^2S_{153}^2) = 1 \\ Axis 49 \\ court \\ trial \\ wk \\ habeas \\ declaratory \\ conservatorship \\ waives \\ laches \\ talionis \\ E(S_{45}^2S_{103}^2) = 1 \\ Axis 67 \\ blue \\ white \\ red \\ \end{array}$	$\begin{array}{r} 1447.4\\ 1433.3\\ \hline \\ 143.3\\ \hline \\ site\\ website\\ forum\\ photos\\ \hline \\ \hline \\ \hline \\ \hline \\ \\ \\ \hline \\$	$\label{eq:constraint} \begin{split} & \text{urogenital} \\ & \text{E}(S_{23}^2S_{13}^2) = 1.4 \\ & \text{Axis 36} \\ & \text{htp} \\ & \text{htp} \\ & \text{www} \\ & \text{htm} \\ & \\ & \frac{w_k}{wk} \\ & \text{mtu} \\ & \text{stateful} \\ & \text{proxying} \\ & \text{mpls} \\ & \text{vpns} \\ & \text{kleinrock} \\ \hline & \text{E}(S_{26}^2S_{10}^2) = 1. \\ & \text{Axis 56} \\ & \text{cpu} \\ & \text{microprocessor} \\ & \text{processor} \\ & \text{processor} \\ & \text{processor} \\ & \\ & \text{processor} \\ & \text{mosfet} \\ & \text{voltages} \\ & \text{microprocessor} \\ & \text{mosfet} \\ & \text{voltages} \\ & \text{microprocessor} \\ & \text{microprocessor} \\ & \text{processor} \\ & \text{mosfet} \\ & \text{voltages} \\ & \text{microprocessor} \\ & \text{microprocessor} \\ & \text{mosfet} \\ & \text{voltages} \\ & \text{electrical} \\ & \text{circuits} \\ \hline \end{cases}$	$\begin{array}{r} 1344.7\\ \hline \\ 19\\ \hline \\ Axis 73\\ \hline \\ ip\\ tcp\\ protocol\\ \hline \\ \hline \\ S^2_{k,30}S^2_{k,73}\\ \hline \\ 1425.4\\ 1352.4\\ 1352.4\\ 1352.4\\ 1352.4\\ 1352.4\\ 1352.4\\ 1352.4\\ 1352.4\\ 1352.4\\ \hline \\ 226.5\\ \hline \\ 803\\ \hline \\ \hline \\ 81\\ \hline \\ 82\\ 82\\ 82\\ 82\\ 82\\ 82\\ 82\\ 82\\ 82\\ 8$	$\begin{array}{l} \mbox{efficient}\\ \mbox{efficient}\\ \mbox{if constraints}\\ \mbox{E}(S^2_{103}S^2_{133}) = 4 \\ \mbox{Axis 168}\\ \mbox{licenses}\\ \mbox{licenses}\\ \mbox{icenses}\\ \mbox{w_k}\\ \mbox{copyleft}\\ \mbox{magnature}\\ \mbox{rightsholder}\\ \mbox{redistribute}\\ \mbox{copyrights}\\ \mbox{circumvention}\\ \mbox{E}(S^2_{10}S^2_{11}) = 1.\\ \mbox{Axis 56}\\ \mbox{cpus}\\ \mbox{w_k}\\ \mbox{microprocessor}\\ \mbox{cpus}\\ \mbox{w_k}\\ \mbox{data gba}\\ \mbox{vectrex}\\ \mbox{epyx}\\ \mbox{vect}\\ \mbox{equation}\\ \mbox{efficients}\\ \mbox{E}(S^2_{10}S^2_{11}) = 1.\\ \mbox{Axis 101}\\ \mbox{wetrex}\\ \mbox{epyx}\\ \mbox{vectrex}\\ \mbox{epyx}\\ \mbox{vectrical}\\ \mbox{circuits}\\ \mbox{efficients}\\ \m$	$\begin{array}{r} 1143.5\\ \hline 1.495\\ Axis 193\\ \hline rights\\ legislation\\ act\\ laws\\ \hline \\ \hline \\ \hline \\ \hline \\ \hline \\ \hline \\ \\ \hline \\ \hline \\ \\ \hline \\ \\ \hline \\ \hline \\ \\ \hline \\ \hline \\ \hline \\ \\ \hline \\ \hline \\ \hline \\ \\ \hline \\ \hline \\ \\ \hline \\ \hline \\ \hline \\ \\ \hline \hline \\ \hline \\ \hline \hline \\ \hline \hline \\ \hline \\ \hline \\ \hline \\ \hline \hline \\ \hline \\ \hline \\ \hline \\ \hline \hline \\ \hline \\ \hline \\ \hline \\ \hline \hline \\ \hline \\ \hline \hline \\ \hline \\ \hline \\ \hline \hline \\ \hline \\ \hline \hline \\ \hline \\ \hline \\ \hline \hline \\ \hline \\ \hline \hline \\ \hline \hline \\ \hline \\ \hline \\ \hline \hline \\ \hline \\ \hline \hline \\ \hline \\ \hline \\ \hline \\ \hline \hline \\ \hline \\ \hline \\ \hline \hline \\ \hline \hline \\ \\ \hline \hline \\ \hline \hline \\ \hline \hline \\ \hline \\ \hline \hline \\ \hline \hline \\ \hline \\ \hline \hline \hline \\ \hline \hline \hline \\ \hline \hline \hline \\ \hline \hline \hline \hline \hline \\ \hline \hline \hline \hline \\ \hline \hline \hline \\ \hline \hline \hline$
$\begin{array}{c} \mbox{sommolence} \\ \hline {\rm E}(S^2_{16}S^2_{118}) = 2.12\\ \mbox{Axis 16} \\ \hline \mbox{blood} \\ \mbox{organs} \\ \mbox{iver} \\ \mbox{kidney} \\ \hline \mbox{wk} \\ \mbox{atrophy} \\ \mbox{hemiparesis} \\ \mbox{axonal} \\ \mbox{dysfunction} \\ \mbox{neuropathy} \\ \mbox{myopathy} \\ \hline \mbox{E}(S^2_{100}S^2_{12}) = 1.70\\ \mbox{Axis 169} \\ \hline \mbox{female} \\ \mbox{male} \\ \mbox{male} \\ \mbox{vulval} \\ \mbox{faggot} \\ \mbox{spermatozoon} \\ \mbox{frot} \\ \mbox{tribadism} \\ \hline \mbox{E}(S^2_{188}S^2_{119}) = 1.40\\ \mbox{Axis 188} \\ \hline \mbox{less} \\ \mbox{than} \\ \mbox{more} \\ \mbox{much} \\ \mbox{wk} \\ \mbox{thermojet} \\ \hline \end{array}$	$\begin{array}{r llllllllllllllllllllllllllllllllllll$	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	$\begin{array}{r} 2237.7\\ \hline & 2237.7\\ \hline & Axis 112\\ \hline & episode\\ & aired\\ & show\\ \hline & v\\ \hline & \\ \hline & \\ \hline \hline & \\ \hline & \\ \hline & \\ \hline \hline & \\ \hline \hline & \\ \hline & \\ \hline \hline & \\ \hline & \\ \hline \hline \\ \hline \hline & \\ \hline \hline & \\ \hline \hline \hline \\ \hline \hline \hline & \\ \hline \hline \hline \\ \hline \hline \hline \\ \hline \hline \hline \\ \hline \hline \hline \hline$	$\label{eq:second} \hline \frac{\text{vena}}{\text{E}(S_{30}^2\text{P23})} = 1 \\ \hline \text{Axis 30} \\ \hline \text{stations} \\ \hline \text{fm} \\ \hline \text{radio} \\ \hline \text{radio} \\ \hline w_k \\ \hline \text{canwest} \\ \hline \text{ctr} \\ \hline w_k \\ \hline \text{canwest} \\ \hline \text{ctr} \\ \hline \text{wanbao} \\ \hline \text{aor} \\ \hline \text{canwest} \\ \hline \text{ctr} \\ \hline \text{wanbao} \\ \hline \text{aor} \\ \hline \text{canwest} \\ \hline \text{canwest} \\ \hline \text{ctr} \\ \hline \text{wk} \\ \hline \hline \text{quantum} \\ \hline \text{particles} \\ \hline \text{polysics} \\ \hline \hline \\ \hline \text{wk} \\ \hline \\ \hline \text{mesons gluons photon synchrotron isospin} \\ \hline \hline \\ \hline \text{E}(S_{67}^2 S_{11}^2) = 1 \\ \hline \\ \hline \text{Axis 67} \\ \hline \\ $	$\frac{1005.6}{Axis 123} \\ newspaper \\ daily \\ weekly \\ newspapers \\ S^2_{k,30}S^2_{k,123} \\ 1941.7 \\ 1343.4 \\ 1276.0 \\ 0.1144.2 \\ 1116.1 \\ 998.0 \\ .765 \\ Axis 103 \\ wavelength \\ light \\ wavelength \\ light \\ wavelength \\ light \\ avelength \\ avelength \\ light \\ avelength \\ avelengt$	$\begin{array}{c} \mbox{cardiology} \\ \hline E(S_{20}^2S_{20}^2) = 1.0 \\ \mbox{Axis 36} \\ \hline \mbox{htm} \\ \mbox{htm} \\ \hline \mbox{htm} \\ \mbox{www} \\ \mbox{htm} \\ \mbox{multiple} \\ \hline \mbox{www} \\ \mbox{shtml} \\ \mbox{geocities} \\ geocit$	$\begin{array}{r} 1447.4\\ 1433.3\\ \hline \\ 143.3\\ \hline \\ site\\ website\\ forum\\ photos\\ \hline \\ S^2_{k,30}S^2_{k,50}\\ \hline \\ 1537.9\\ 1230.3\\ 871.2\\ 758.0\\ 644.7\\ 593.3\\ \hline \\ 871.2\\ 758.0\\ 644.7\\ \hline \\ 1200.3\\ \hline \\ 871.2\\ 78.0\\ 644.7\\ \hline \\ 893.7\\ \hline \\ 893.7\\ \hline \\ 823.5\\ \hline \\ 783.1\\ 753.2\\ 783.1\\ 753.2\\ 783.1\\ 753.2\\ 783.1\\ 753.2\\ 783.1\\ 753.2\\ 783.1\\ 753.2\\ 734.4\\ 721.3\\ \hline \\ 823.5\\ \hline \\ 783.1\\ 753.2\\ 734.4\\ 721.3\\ \hline \\ 823.5\\ \hline \\ 783.1\\ 753.2\\ 734.4\\ 721.3\\ \hline \\ 823.5\\ \hline \\ 783.1\\ 753.2\\ 734.4\\ 721.3\\ \hline \\ 823.5\\ \hline \\ 82$	$\label{eq:started} \begin{split} & \text{urogenital} \\ & \text{E}(S^2_{30}S^2_{73}) = 1.4 \\ & \text{Axis } 36 \\ & \text{http} \\ & \text{www} \\ & \text{htm} \\ & \\ & \text{www} \\ & \text{htm} \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ $	$\begin{array}{r} 1344.7\\ \hline 19\\ \hline Axis 73\\ \hline ip\\ tcp\\ protocols\\ \hline S^2_{k,36}S^2_{k,73}\\ 1324.2\\ 1325.4\\ 1325.4\\ 1324.2\\ 1264.5\\ 798.6\\ 796.1\\ \hline voltage\\ electrical\\ circuits\\ current\\ \hline S^2_{k,56}S^2_{k,101}\\ \hline 2589.8\\ 2081.5\\ 1901.2\\ 1757.0\\ 1582.9\\ 1554.5\\ \hline 800\\ \hline Axis 103\\ \hline wavelengths\\ light\\ wavelengths\\ laser\\ \hline S^2_{k,101}S^2_{k,103}\\ \hline S^2_{k,101}S^2_{k,103}\\ \hline 2784.6\\ \hline \end{array}$	$\begin{array}{c} \operatorname{effrent}_{\operatorname{mitral}} \\ & \operatorname{effrent}_{\operatorname{mitral}} \\ & \operatorname{E}(S_{168}^2S_{193}^2) = \\ & \operatorname{Axis 168} \\ \hline \\ & \operatorname{license} \\ & \operatorname{copyleft} \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ $	1143.5 1.495 Axis 193 rights legislation act laws S ² _{k,108} S ² _{k,103} 839.7 809.7 676.5 6533 592 Axis 71 game games games games game, 138.5 1349.0 113.8 138.5 1349.0 113.6 1097.0 1.641 Axis 119 combustion diesel turbine engine S ² _{k,101} S ² _{k,101} S ² _{k,101} S ² _{k,101}
$\begin{tabular}{ c c c c } \hline $$ some observed and $$ $$ $$ $$ $$ $$ $$ $$ $$ $$ $$ $$ $$$	$\begin{array}{r} 1426.1\\ \hline \\ 4\\ Axis 118\\ \hline \\ disorder\\ symptoms\\ \hline \\ $\mathbf{S}_{k,16}^2 \mathbf{S}_{k,118}^2\\ 110.2\\ 1877.5\\ 1465.9\\ 1380.2\\ 1300.1\\ 1288.3\\ 1288.3\\ 1288$	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	$\begin{array}{r} \hline 2237.7\\ \hline \\ & \begin{array}{c} Axis 112\\ episode\\ aired\\ show\\ tv\\ \hline \\ \hline \\ & \begin{array}{c} S_{k,30}^2S_{k,112}\\ 1635.4\\ 1635.4\\ 1600.9\\ 1534.6\\ 1441.3\\ 1392.0\\ \hline \\ \hline \\ & \begin{array}{c} Axis 121\\ families\\ family\\ older\\ household\\ \hline \\ & \begin{array}{c} S_{k,44}^2S_{k,121}^2\\ 1365.5\\ 3637.6\\ 3636.1\\ 3295.0\\ \hline \\ \hline \\ & \begin{array}{c} 306\\ Axis 205\\ names\\ various\\ include\\ these\\ \hline \\ & \begin{array}{c} S_{k,188}^2S_{k,205}\\ \hline \\ & \begin{array}{c} S_{k,188}^2S_{k,205}\\ \hline \\ & \begin{array}{c} S_{k,188}^2S_{k,205}\\ \hline \\ & \begin{array}{c} S_{k,205}\\ \hline \\ & \begin{array}{c} S_{k,205}\\ \hline \\ & \begin{array}{c} S_{k,205}\\ \hline \\ \\ \\ \end{array} \end{array} \right)$	$\label{eq:starsest} \begin{split} & \frac{\mathrm{vena}}{\mathrm{E}(S_{30}^2S_{123}^2)} = 1\\ & \frac{\mathrm{Axis}\;30}{\mathrm{stations}} = 1\\ & \frac{\mathrm{Axis}\;30}{\mathrm{fm}} = 1\\ & \frac{w_k}{\mathrm{canwest}} = 1\\ & \frac{w_k}{\mathrm{canwest}} = 1\\ & \frac{\mathrm{Axis}\;45}{\mathrm{quantum}} = 1\\ & \frac{\mathrm{Axis}\;45}{\mathrm{quantum}} = 1\\ & \frac{\mathrm{Axis}\;45}{\mathrm{quantum}} = 1\\ & \frac{\mathrm{Axis}\;45}{\mathrm{quantum}} = 1\\ & \frac{\mathrm{quantum}}{\mathrm{particles}} = 1\\ & \frac{\mathrm{quantum}}{\mathrm{particles}} = 1\\ & \frac{\mathrm{quantum}}{\mathrm{synchroton}} = 1\\ & \frac{\mathrm{quantum}}{\mathrm{sospin}} = 1\\ & \frac{\mathrm{cs}\;5}{\mathrm{cs}\;5} = 1\\ & \frac{\mathrm{cs}\;5}{\mathrm{quantum}} = 1\\ & \mathrm{cs$	$\begin{array}{r} 1005.6\\ \hline \\ Axis 123\\ \hline \\ newspaper\\ dialy\\ weekly\\ newspapers\\ \hline \\ \hline$	$\begin{array}{c} \mbox{cardiology} \\ \hline E(S_{45}^2S_{40}^2) = 1.0 \\ \mbox{Axis 36} \\ \hline \mbox{htm} \\ \mbox{htm} \\ \mbox{www} \\ \mbox{htm} \\ \mbox{geocitics} \\$	$\begin{array}{r} 1447.4\\ 1433.3\\ \hline \\ 143.3\\ \hline \\ 388\\ \hline \\ Axis 50\\ \hline \\ site \\ website \\ forum \\ photos\\ \hline \\ S_{k,30}^2 S_{k,50}^2\\ \hline \\ 1537.9\\ 1230.3\\ 871.2\\ 758.0\\ 644.7\\ 759.3\\ \hline \\ 616\\ \hline \\ Axis 193\\ \hline \\ rights \\ legislation \\ act \\ laws\\ \hline \\ \hline \\ S_{k,40}^2 S_{k,10}^2\\ \hline \\ 82.5\\ \hline \\ 753.2\\ 734.4\\ 721.3\\ \hline \\ 753.2\\ 734.4\\ 721.3\\ \hline \\ 753.2\\ 734.4\\ 721.3\\ \hline \\ 82.5\\ $	$\label{eq:started} \begin{split} & \frac{\text{urogenital}}{\text{E}(S_{30}^2S_{73}^2) = 1.4} \\ & \text{Axis 36} \\ & \text{http} \\ & \text{www} \\ & \text{htm} \\ & \text{html} \\ & \frac{w_k}{\text{urogenitation}} \\ & \frac{w_k}{\text{starful}} \\ & \text{proxying} \\ & \text{mpls} \\ & \text{vpns} \\ & \text{kleinrock} \\ & \text{E}(S_{50}^2S_{101}^2) = 1.4 \\ & \text{Axis 56} \\ & \text{cpu} \\ & \frac{w_k}{\text{urogenitation}} \\ & \frac{w_k}{\text{starful}} \\ & \text{starful} \\ & \text{starful} \\ & \text{microcelectronic} \\ & \text{starm} \\ & \text{mosfet} \\ & \text{voltages} \\ & \text{microcellectroniclesrs} \\ & \text{E}(S_{101}^2S_{103}^2) = 1 \\ & \text{Axis 101} \\ & \text{voltage} \\ & \text{electrical} \\ & \text{circuits} \\ & \text{current} \\ & \frac{w_k}{\text{w}} \\ & \text{photodiode} \\ & \text{diodes} \\ \end{split}$	$\begin{array}{r} 1344.7\\ \hline 19\\ Axis 73\\ \hline ip\\ tcp\\ protocols\\ \hline S_{k,36}^2S_{k,73}^2\\ 1425.4\\ 1352.4\\ 13$	$\begin{array}{c} \operatorname{effrent}_{\operatorname{mitral}} \\ & \operatorname{E}(S_{168}^2S_{193}^2) = \\ & \operatorname{E}(S_{168}^2S_{193}^2) = \\ & \operatorname{license} \\ & \operatorname{copyleft} \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ $	1143.5 1.495 Axis 193 rights legislation act laws S ² _{k,168} S ² _{k,193} 131.9 839.7 676.5 653.3 592 Axis 71 game games
$\begin{array}{c} \mbox{sommolence} \\ \hline {\rm E}(S^2_{16}S^2_{118}) = 2.12\\ \mbox{Axis 16} \\ \hline \mbox{blood} \\ \mbox{organs} \\ \mbox{iver} \\ \mbox{kidney} \\ \hline \mbox{wk} \\ \mbox{atrophy} \\ \mbox{hemiparesis} \\ \mbox{axonal} \\ \mbox{dysfunction} \\ \mbox{neuropathy} \\ \mbox{myopathy} \\ \hline \mbox{E}(S^2_{100}S^2_{12}) = 1.70\\ \mbox{Axis 169} \\ \hline \mbox{female} \\ \mbox{male} \\ \mbox{male} \\ \mbox{vulval} \\ \mbox{faggot} \\ \mbox{spermatozoon} \\ \mbox{frot} \\ \mbox{tribadism} \\ \hline \mbox{E}(S^2_{188}S^2_{119}) = 1.40\\ \mbox{Axis 188} \\ \hline \mbox{less} \\ \mbox{than} \\ \mbox{more} \\ \mbox{much} \\ \mbox{wk} \\ \mbox{thermojet} \\ \hline \end{array}$	$\begin{array}{r llllllllllllllllllllllllllllllllllll$	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	$\begin{array}{r} 2237.7\\ \hline & 2237.7\\ \hline & Axis 112\\ \hline & episode\\ & aired\\ & show\\ \hline & v\\ \hline & \\ \hline & \\ \hline \hline & \\ \hline & \\ \hline & \\ \hline \hline & \\ \hline \hline & \\ \hline & \\ \hline \hline & \\ \hline & \\ \hline \hline \\ \hline \hline & \\ \hline \hline & \\ \hline \hline \hline \\ \hline \hline \hline & \\ \hline \hline \hline \\ \hline \hline \hline \\ \hline \hline \hline \\ \hline \hline \hline \hline$	$\label{eq:second} \hline \frac{\text{vena}}{\text{E}(S_{30}^2\text{P23})} = 1 \\ \hline \text{Axis 30} \\ \hline \text{stations} \\ \hline \text{fm} \\ \hline \text{radio} \\ \hline \text{radio} \\ \hline w_k \\ \hline \text{canwest} \\ \hline \text{ctr} \\ \hline w_k \\ \hline \text{canwest} \\ \hline \text{ctr} \\ \hline \text{wanbao} \\ \hline \text{aor} \\ \hline \text{canwest} \\ \hline \text{ctr} \\ \hline \text{wanbao} \\ \hline \text{aor} \\ \hline \text{canwest} \\ \hline \text{canwest} \\ \hline \text{ctr} \\ \hline \text{wk} \\ \hline \hline \text{quantum} \\ \hline \text{particles} \\ \hline \text{polysics} \\ \hline \hline \\ \hline \text{wk} \\ \hline \\ \hline \text{mesons gluons photon synchrotron isospin} \\ \hline \hline \\ \hline \text{E}(S_{67}^2 S_{11}^2) = 1 \\ \hline \\ \hline \text{Axis 67} \\ \hline \\ $	$\frac{1005.6}{Axis 123} \\ newspaper \\ daily \\ weekly \\ newspapers \\ S^2_{k,30}S^2_{k,123} \\ 1941.7 \\ 1343.4 \\ 1276.0 \\ 0.1144.2 \\ 1116.1 \\ 998.0 \\ .765 \\ Axis 103 \\ wavelength \\ light \\ wavelength \\ light \\ wavelength \\ light \\ avelength \\ avelength \\ light \\ avelength \\ avelengt$	$\begin{array}{c} \mbox{cardiology} \\ \hline E(S_{20}^2S_{20}^2) = 1.0 \\ \mbox{Axis 36} \\ \hline \mbox{htm} \\ \mbox{htm} \\ \hline \mbox{htm} \\ \mbox{www} \\ \mbox{htm} \\ \mbox{multiple} \\ \hline \mbox{www} \\ \mbox{shtml} \\ \mbox{geocities} \\ geocit$	$\begin{array}{r} 1447.4\\ 1433.3\\ \hline \\ 143.3\\ \hline \\ site\\ website\\ forum\\ photos\\ \hline \\ S^2_{k,30}S^2_{k,50}\\ \hline \\ 1537.9\\ 1230.3\\ 871.2\\ 758.0\\ 644.7\\ 593.3\\ \hline \\ 871.2\\ 758.0\\ 644.7\\ \hline \\ 1200.3\\ \hline \\ 871.2\\ 78.0\\ 644.7\\ \hline \\ 893.7\\ \hline \\ 893.7\\ \hline \\ 823.5\\ \hline \\ 783.1\\ 753.2\\ 783.1\\ 753.2\\ 783.1\\ 753.2\\ 783.1\\ 753.2\\ 783.1\\ 753.2\\ 783.1\\ 753.2\\ 734.4\\ 721.3\\ \hline \\ 823.5\\ \hline \\ 783.1\\ 753.2\\ 734.4\\ 721.3\\ \hline \\ 823.5\\ \hline \\ 783.1\\ 753.2\\ 734.4\\ 721.3\\ \hline \\ 823.5\\ \hline \\ 783.1\\ 753.2\\ 734.4\\ 721.3\\ \hline \\ 823.5\\ \hline \\ 824.5\\ \hline \\ 824.5\\ \hline \\ 844.5\\ \hline \\ 84$	eq:starsessessessessessessessessessessessesses	$\begin{array}{r} 1344.7\\ \hline 19\\ \hline Axis 73\\ \hline ip\\ tcp\\ protocols\\ \hline S^2_{k,36}S^2_{k,73}\\ 1324.2\\ 1325.4\\ 1325.4\\ 1324.2\\ 1264.5\\ 798.6\\ 796.1\\ \hline voltage\\ electrical\\ circuits\\ current\\ \hline S^2_{k,56}S^2_{k,101}\\ \hline 2589.8\\ 2081.5\\ 1901.2\\ 1757.0\\ 1582.9\\ 1554.5\\ \hline 800\\ \hline Axis 103\\ \hline wavelengths\\ light\\ wavelengths\\ laser\\ \hline S^2_{k,101}S^2_{k,103}\\ \hline S^2_{k,101}S^2_{k,103}\\ \hline 2784.6\\ \hline \end{array}$	$\begin{array}{c} \operatorname{effrent}_{\operatorname{mitral}} \\ & \operatorname{effrent}_{\operatorname{mitral}} \\ & \operatorname{E}(S_{168}^2S_{193}^2) = \\ & \operatorname{Axis 168} \\ \hline \\ & \operatorname{license} \\ & \operatorname{copyleft} \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ $	1143.5 1.495 Axis 193 rights legislation act laws S ² _{k,108} S ² _{k,103} 839.7 809.7 676.5 6533 592 Axis 71 game games games games game, 138.5 1349.0 113.8 138.5 1349.0 113.6 1097.0 1.641 Axis 119 combustion diesel turbine engine S ² _{k,101} S ² _{k,101} S ² _{k,101} S ² _{k,101}
$\begin{array}{l} \mbox{sommolence} \\ \hline {\rm E}(S^2_{16}S^2_{118}) = 2.12 \\ \mbox{Axis 16} \\ \hline \mbox{blood} \\ \mbox{organs} \\ \mbox{liver} \\ \mbox{kidney} \\ \hline \mbox{wk} \\ \hline \mbox{atrophy} \\ \mbox{hemiparesis} \\ \mbox{axonal} \\ \mbox{dysfunction} \\ \mbox{neuropathy} \\ \mbox{myopathy} \\ \hline \mbox{E}(S^2_{16}S^2_{11}) = 1.70 \\ \mbox{Axis 169} \\ \mbox{female} \\ \mbox{male} \\ \mbox{age} \\ \mbox{infant} \\ \hline \mbox{wk} \\ \hline \mbox{male} \\ \mbox{spermatozoon} \\ \mbox{frot} \\ \mbox{tribadism} \\ \hline \mbox{E}(S^2_{188}S^2_{119}) = 1.4 \\ \mbox{Axis 188} \\ \hline \mbox{less} \\ \mbox{than} \\ \mbox{more} \\ \mbox{much} \\ \hline \mbox{wk} \\ \hline \mbox{thermojet} \\ \mbox{dirtier} \\ \mbox{cng} \end{array}$	$\begin{array}{r} 1426.1\\ \hline \\ 4 \\ Axis 118\\ \hline \\ disorder\\ mental\\ disorders\\ symptoms\\ \hline \\ {\bf S}^2_{k,16} {\bf S}^2_{k,118}\\ \hline \\ {\bf 2}110.2\\ 1877.5\\ 1465.9\\ 1380.2\\ 1300.1\\ 1288.3\\ \hline \\ {\bf 1}300.1\\ 1288.3\\ \hline \\ {\bf Axis 72}\\ sexual\\ sex\\ homosexual\\ heterosexual\\ heterosexual\\ S^2_{k,109} {\bf S}^2_{k,72}\\ \hline \\ {\bf 1}240.5\\ 5\\ 1191.4\\ 981.2\\ 961.5\\ 940.6\\ 843.5\\ \hline \\ {\bf 4}42\\ \hline \\ {\bf Axis 119}\\ combustion\\ diesel\\ turbine\\ engine\\ \hline {\bf S}^2_{k,188} {\bf S}^2_{k,119}\\ \hline \\ {\bf S}^{10}_{k,188} {\bf S}^2_{k,119}\\ \hline \\ {\bf S}^{11}_{k,188} {\bf S}^2_{k,119}\\ \hline \\ {\bf S}^{11}_{k,198} {\bf S}^2_{k,1198}\\ \hline \\ \\ {\bf S}^{11}_{k,198} {\bf S}^2_{k,198}\\ \hline \\ \\ \\ {\bf S}^{11}_{k,198} {\bf S}^2_{k,198}\\ \hline \\ \\ \\ \\ {\bf S}^{11}_{k,198} {\bf S}^2_{k,198} {\bf S}^2_{k,198}\\ \hline \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\$	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	$\begin{array}{r} \hline 2237.7\\ \hline & 2237.7\\ \hline & Axis 112\\ \hline episode \\ aired \\ show \\ tv \\ \hline & $\mathbf{S}^2_{k,30}\mathbf{S}^2_{k,112}$ \\ \hline & 1729.4 \\ 1635.4 \\ $	$\label{eq:sense} \hline \frac{\text{vena}}{\text{E}(S_{30}^2\text{P23})} = 1 \\ \hline \text{Axis 30} \\ \hline \text{stations} \\ \hline \text{fm} \\ \hline \text{radio} \\ \hline \text{tradio} \\ \hline w_k \\ \hline \text{canwest} \\ \text{ctv} \\ \hline w_k \\ \hline \text{canwest} \\ \text{ctv} \\ \text{wayrr} \\ \text{superstation} \\ \hline \text{wayrr} \\ \text{superstation} \\ \hline \text{wayrr} \\ \hline \text{mesons} \\ \hline \text{gluons} \\ \hline \text{photons} \\ \hline \text{photons} \\ \hline \text{photons} \\ \hline \text{photons} \\ \hline \text{synchrotron} \\ \hline \text{isospin} \\ \hline \text{E}(S_{45}^2 S_{11}^2) = 1 \\ \hline \text{Axis 67} \\ \hline \text{blue} \\ \hline \text{while} \\ \hline \text{red} \\ \hline \text{yellow} \\ \hline \hline \\ \hline w_k \\ \hline \\ \hline \text{sash} \\ \hline \text{hakama} \\ \ \text{turbans} \\ \hline \hline \end{array}$	$\begin{array}{r} 1005.6\\ \hline \\ 5.70\\ Axis 123\\ newspaperdailyweeklynewspapers $$^2_{k,30}$$^2_{k,123}\\ 1941.7\\ 1343.4\\ 0& 174.0\\ 174.0\\ 1116.1\\ 998.0\\ \hline \\ 6.765\\ Axis 103\\ wavelength\\ lightwavelength\\ lightwavelength\\ lightwavelength\\ laser $$^2_{k,45}$$^2_{k,103}\\ 3078.7\\ 2079.4\\ 1648.3\\ 1567.6\\ 1435.1\\ 1414.1\\ \hline \\ .723\\ Axis 111\\ \hline \\ worn\\ wearing\\ clothing\\ clothing\\ clothing\\ xearing\\ 2800.1\\ 2144.4\\ 1756.4\\ \hline \end{array}$	$\begin{array}{c} \mbox{cardiology} \\ \hline E(S_{45}^2S_{50}^2) = 1.0 \\ \mbox{Axis 36} \\ \hline \mbox{htm} \\ \mbox{htm} \\ \mbox{www} \\ \mbox{htm} \\ \mbox{dwww} \\ \mbox{html} \\ \mbox{geocitics} \\ \mbox{jeancocteau} \\ \mbox{Ifc} \\ \mbox{geocitics} \\ \mbox{jeancocteau} \\ \mbox{Ifc} \\ \mbox{geocitics} \\ \mbox{jeancocteau} \\ \mbox{Ifc} \\ \mbox{geocitics} \\ \mbox{geocitics} \\ \mbox{jeancocteau} \\ \mbox{Ifc} \\ \mbox{geocitics} \\ $	$\begin{array}{r} 1447.4\\ 1433.3\\ \hline \\ 143.3\\ \hline \\ site\\ website\\ forum\\ photos\\ \hline \\ \hline \\ S^2_{k,30}S^2_{k,30}\\ \hline \\ 1537.9\\ 1230.3\\ 871.2\\ 758.0\\ 644.7\\ 593.3\\ \hline \\ 1230.3\\ 871.2\\ 758.0\\ 644.7\\ 593.3\\ \hline \\ \\ rights\\ legislation\\ act\\ laws\\ \hline \\ \hline \\ S^2_{k,49}S^2_{k,103}\\ \hline \\ \\ \hline \\ \hline \\ \\ \\ \hline \\ \hline \\ \hline \\ \hline \\ \hline \\ \hline \\ \hline \\ \\ \hline \hline \\ \hline \\ \hline \\ \hline \\ \hline \hline \\ \hline \\ \hline \\ \hline \\ \hline \\ \hline \hline \\ \hline \hline \\ \hline \hline \hline \\ \hline \hline \\ \hline \hline \\ \hline \hline \\ \hline \hline \hline \hline \\ \hline \hline \hline \\ \hline \hline \hline \hline \\ \hline \hline \hline \\ \hline \hline \hline \hline \\ \hline \hline \hline \hline \hline \\ \hline \hline \hline \hline \hline \\$	$\label{eq:started} \begin{split} & \frac{\text{urogenital}}{\text{E}(S_{3g}^2 S_{73}^2) = 1.4} \\ & \text{Axis 36} \\ & \text{http} \\ & \text{www} \\ & \text{htm} \\ & \frac{w_k}{\text{mtu}} \\ & \frac{w_k}{\text{mtu}} \\ & \frac{w_k}{\text{startful}} \\ & \frac{w_k}{s$	$\begin{array}{r} 1344.7\\ \hline 19\\ Axis 73\\ \hline ip\\ tcp\\ protocols\\ protocol\\ \hline S^2_{k,30}S^2_{k,73}\\ 1425.4\\ 1352.4\\ 1352.4\\ 1352.4\\ 1352.4\\ 1264.5\\ 798.6\\ 796.1\\ \hline 693\\ \hline Axis 101\\ \hline voltage\\ electrical\\ circuits\\ current\\ \hline S^2_{k,50}S^2_{k,101}\\ \hline 2589.8\\ 2081.5\\ 1901.2\\ 1757.0\\ 1582.9\\ 1554.5\\ \hline 800\\ \hline Axis 103\\ \hline wavelength\\ light\\ wavelength\\ light\\ wavelength\\ laser\\ \hline S^2_{k,101}S^2_{k,103}\\ \hline 2784.6\\ 2320.6\\ 1959.3\\ \hline \end{array}$	$\begin{array}{l} \mbox{efficient}\\ \mbox{efficient}\\ \mbox{if cal} \\ E(S_{168}^2S_{133}^2) = \\ \mbox{Axis 168}\\ \mbox{licenses}\\ \mbox{licenses}\\ \mbox{if cal} \\ \mbox{gpl}\\ \mbox{licenses}\\ \mbox{if cal} \\ \mbox{copyleft}\\ \mbox{magnature}\\ \mbox{rightsholder}\\ \mbox{redistribute}\\ \mbox{copyleft}\\ \mbo$	$\begin{array}{r llllllllllllllllllllllllllllllllllll$

Table 8: Complementary experimental results to Table 3. For all component pairs (S_i, S_j) in the first subtree of the MST in Fig. 5, the top 6 words and their corresponding $\mathbf{S}_{t,i}^2 \mathbf{S}_{t,j}^2$ values that contribute the most to the $E(S_i^2 S_j^2)$ value are presented.

$E(S_2^2 S_{10}^2) = 2.323$ Axis 2	Axis 10	$E(S_2^2 S_{119}^2) = 1.75$ Axis 2	55 Axis 119	$\begin{array}{l} {\rm E}(S^2_{132}S^2_{30}) = 1\\ {\rm Axis}\; 132 \end{array}$.820 Axis 30	$\begin{array}{l} {\rm E}(S^2_{132}S^2_{73})=1\\ {\rm Axis}\; 132 \end{array}$	693 Axis 73	$\begin{split} \mathbf{E}(S^2_{132}S^2_{62}) &= 1.\\ \mathbf{Axis} \ 132 \end{split}$	632 Axis 62	$\begin{array}{l} {\rm E}(S^2_{136}S^2_{56}) = \\ {\rm Axis} \ 136 \end{array}$	1.967 Axis 56
acid	dna	acid	combustion	telephone	stations	telephone	ip	telephone	company	disk	cpu
hydrogen	proteins	hydrogen	diesel	phone	fm	phone	tcp	phone	corporation	floppy	microprocessor
acids	rna	acids	turbine	mobile	radio	mobile	protocols	mobile	companies	disks	processor
oh	mrna	oh	engine	cellular	broadcast	cellular	protocol	cellular	shareholders	drives	cpus
w _k	$S_{k,2}^2 S_{k,10}^2$	wk	$S_{k,2}^2 S_{k,119}^2$	w_k	$S_{k,132}^2 S_{k,30}^2$	w_k	$S_{k,132}^2 S_{k,73}^2$	w_k	$S_{k,132}^2 S_{k,62}^2$	w_k	$S_{k,136}^2 S_{k,56}^2$
ribose	3755.7	pyrolysis	2794.4	digitalized	4726.8	multipoint	2062.7	esat	3145.5	sata	3427.5
deoxyribose	2963.9	syngas	2056.9	arabsat	4657.2	pstn	1996.9	telecoms	2547.9	udma	2519.7
phosphodiester	2850.2	gasification	1783.5	radiotelephone	4453.9	wimax	1873.8	nynex	2155.9	backplanes	2008.9
biosynthesis	2510.1	butane	1761.2	landlines	3522.1	xdsl	1491.2	gnc	1810.0	nexgen	1947.7
methyltransferase	2482.9	dehydrogenation	1623.0	intersputnik	3053.5	svcs	1361.2	haitel	1657.3	megabytes	1890.1
pyrimidine	2399.6	tert	1230.2	telex	2722.4	isdn	1235.8	openreach	1529.2	eisa	1859.5
$E(S_{10}^2 S_{16}^2) = 1.947$		$E(S_{10}^2S_{160}^2) = 1.8$.615	$E(S_{13}^2 S_{56}^2) = 1.$		$E(S_{13}^2 S_{168}^2) = 1.$	991		.740
Axis 10	Axis 16	Axis 10	Axis 160	Axis 140	Axis 56	Axis 13	Axis 56	Axis 13	Axis 168	Axis 13	Axis 73
dna	blood	dna	evolution	import	cpu	windows	cpu	windows	license	windows	ip
proteins	organs liver	proteins rna	evolutionary darwin	duplicate info	microprocessor processor	os unix	microprocessor	os unix	copyleft	os unix	tcp
rna mrna	kidney	mrna	selection	no	cpus	linux	processor cpus	linux	gpl licenses	linux	protocols protocol
	$S_{k,10}^2 S_{k,16}^2$	$\frac{1}{w_k}$	$\frac{selection}{S_{k,10}^2 S_{k,160}^2}$	$\frac{10}{w_k}$	$\frac{cpus}{S_{k,140}^2 S_{k,56}^2}$		$\frac{c_{pus}}{S_{k,13}^2 S_{k,56}^2}$	w _k	1000000000000000000000000000000000000	$\frac{w_k}{w_k}$	$\frac{\mathbf{S}_{k,13}^2 \mathbf{S}_{k,73}^2}{\mathbf{S}_{k,73}^2}$
adenylate	2079.8	utr	2381.5	superpipelined	5652.9	$\frac{w_k}{\text{xcode}}$	2609.7	qpl	5678.2	netware	1799.2
effectors	1842.5	reticulum	2381.5	strongarm	3220.2	powerpc	2009.7	lgpl	4519.9	netbios	1543.2
antisense	1639.9	genomic	1668.6	specrate	2470.5	itanium	1500.1	trolltech	3588.4	imap	1414.0
cyclase	1638.9	homozygous	1599.1	specbaserate	1524.5	glibc	1355.1	gpl	3325.2	glut	1239.0
myosin	1201.8	cleaved	1181.0	insubstantial	1387.8	irix	1177.1	gnu	2826.1	wfw	1179.9
axons	1144.2	tubulin	1152.4	eisa	1027.8	efi	1161.1	bsd	2822.7	dhcpv	1115.5
$E(S_{15}^2S_{118}^2) = 1.95$		$E(S_{15}^2S_{44}^2) = 1.79$		$E(S_{16}^2S_{248}^2) = 1$		$E(S_{16}^2S_{147}^2) = 1$		$E(S_{16}^2S_{72}^2) = 1.6$		$E(S_{16}^2S_{52}^2) = 2$	
Axis 15	Axis 118	Axis 15	Axis 44	Axis 16	Axis 248	Axis 16	Axis 147	Axis 16	Axis 72	Axis 16	Axis 52
drugs	disorder	drugs	plants	blood	increase	blood	medicine	blood	sexual	blood	infectious
drug	mental	drug	plant	organs	increased	organs	medical	organs	sex	organs	infection
heroin	disorders	heroin	flowers	liver	increasing	liver	doctors	liver	homosexual	liver	disease
lsd	symptoms	lsd	flowering	kidney	increases	kidney	care	kidney	heterosexual	kidney	infections
w_k	${\bf S}_{k,15}^2 {\bf S}_{k,118}^2$	<i>w</i> _k	$S_{k,15}^2 S_{k,44}^2$	w_k	$S_{k,16}^2 S_{k,248}^2$	w_k	$S_{k,16}^2 S_{k,147}^2$	wk	$S_{k,16}^2 S_{k,72}^2$	w_k	$S_{k,16}^2 S_{k,52}^2$
adhd	3505.8	peyote	3197.5	esophagus	2274.6	aortic	1726.9	erectile	2001.5	abscess	1932.6
anticonvulsants	3047.9	purpurea	2926.6	lobes	1462.4	brainstem	1537.1	dildo	1788.8	multifocal	1440.2 1239.3
sertraline lorazepam	2374.6 1604.8	meo deliriants	2878.6 2397.0	cava ligamentum	1360.8 1024.8	endoscopy laparoscopic	1533.7 1509.4	clitoral deferens	1481.5 1432.6	hemorrhagic esophagitis	1239.3
anticonvulsant	1487.1	diplopterys	2397.0	transversal	1024.8	angioplasty	1447.4	rectal	1352.0	efferent	1160.5
somnolence	1426.1	cabrerana	2237.7	vena	1005.6	cardiology	1433.3	urogenital	1344.7	mitral	1143.5
- (- 2 - 2 - 2 - 2				D(222)		$E(S_{36}^2S_{50}^2) = 1.$		$E(S_{36}^2S_{73}^2) = 1.4$		$E(S_{168}^2S_{193}^2) =$	
$E(S_{2}^{2}, S_{2}^{2},) = 2.12$	14	$E(S_{2}^2, S_{2}^2) = 2.0$	160						10	$-1(0)_{168}(0)_{193}) =$	
$E(S_{16}^2 S_{118}^2) = 2.12$ Axis 16	4 Axis 118	$E(S_{30}^2S_{112}^2) = 2.0$ Axis 30	060 Axis 112	$E(S_{30}^2S_{123}^2) = 1$ Axis 30	Axis 123	Axis 36	Axis 50	Axis 36	Axis 73	Axis 168	Axis 193
Axis 16	Axis 118	Axis 30	Axis 112	Axis 30	Axis 123	Axis 36	Axis 50			Axis 168	Axis 193
								Axis 36 http www	Axis 73 ip tcp		
Axis 16 blood	Axis 118 disorder	Axis 30 stations	Axis 112 episode	Axis 30 stations	Axis 123 newspaper	Axis 36 http	Axis 50 site	http	ip	Axis 168 license	Axis 193 rights
Axis 16 blood organs	Axis 118 disorder mental disorders symptoms	Axis 30 stations fm	Axis 112 episode aired show tv	Axis 30 stations fm	Axis 123 newspaper daily weekly newspapers	Axis 36 http www	Axis 50 site website forum photos	http www	ip tcp protocols protocol	Axis 168 license copyleft	Axis 193 rights legislation act laws
Axis 16 blood organs liver	Axis 118 disorder mental disorders	Axis 30 stations fm radio	Axis 112 episode aired show	Axis 30 stations fm radio	Axis 123 newspaper daily weekly	Axis 36 http www htm	Axis 50 site website forum	http www htm	ip tcp protocols	Axis 168 license copyleft gpl	Axis 193 rights legislation act
Axis 16 blood organs liver kidney wk atrophy	$\frac{\text{Axis 118}}{\text{disorder}}$ mental disorders symptoms $\mathbf{S}_{k,16}^{2}\mathbf{S}_{k,118}^{2}$ 2110.2	Axis 30 stations fm radio broadcast wk rebroadcast	$\begin{tabular}{ c c c c c } \hline Axis 112 \\ \hline episode \\ aired \\ show \\ tv \\ \hline {\bf S}^2_{k,30} {\bf S}^2_{k,112} \\ \hline {\bf S}^2_{k,30} {\bf S}^2_{k,112} \\ \hline \end{array}$	Axis 30 stations fm radio broadcast w _k canwest	$\begin{tabular}{ c c c c c } \hline Axis 123 \\ \hline newspaper \\ daily \\ weekly \\ newspapers \\ \hline {\bf S}^2_{k,30} {\bf S}^2_{k,123} \\ \hline {\bf 1941.7} \end{tabular}$	$\begin{array}{c} \text{Axis 36} \\ \hline \\ \text{http} \\ \text{www} \\ \text{htm} \\ \hline \\ \hline \\ w_k \\ \hline \\ \text{shtml} \end{array}$	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	http www htm html wk mtu	$ \frac{ip}{tcp} $ protocols protocol $ \frac{S_{k,36}^2 S_{k,73}^2}{1425.4} $	Axis 168 license copyleft gpl licenses w_k copyleft	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$
Axis 16 blood organs liver kidney w_k atrophy hemiparesis	$\begin{tabular}{ c c c c c } \hline Axis 118 \\ \hline disorder \\ mental \\ disorders \\ symptoms \\ \hline S^2_{k,16} S^2_{k,118} \\ \hline S^2_{k,16} S^2_{k,118} \\ \hline 2110.2 \\ 1877.5 \end{tabular}$	$\begin{array}{c} \mbox{Axis 30} \\ \mbox{stations} \\ \mbox{fm} \\ \mbox{radio} \\ \mbox{broadcast} \\ \hline \\ $	$\begin{tabular}{ c c c c c } \hline Axis 112 \\ \hline episode \\ aired \\ show \\ tv \\ \hline $\mathbf{S}_{k,30}^2 \mathbf{S}_{k,112}^2$ \\ \hline $\mathbf{S}_{k,30}^2 \mathbf{S}_{k,112}^2$ \\ \hline 1729.4 \\ 1635.4 \\ \hline \end{tabular}$	$\begin{array}{c} \text{Axis 30} \\ \text{stations} \\ \text{fm} \\ \text{radio} \\ \text{broadcast} \\ \hline \\ $	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	Axis 36 http www html w_k shtml geocities	$\begin{tabular}{ c c c c c c } \hline Axis 50 \\ \hline site & & \\ website & \\ forum & \\ photos & \\ \hline $S^2_{k,36}S^2_{k,50}$ \\ \hline 1537.9 \\ 1230.3 \\ \hline \end{tabular}$	http www htm html w_k mtu stateful		Axis 168 license copyleft gpl licenses w_k copyleft magnatune	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$
Axis 16 blood organs liver kidney wk atrophy hemiparesis axonal	$\begin{tabular}{ c c c c c c } \hline Axis 118 \\ \hline disorder \\ mental \\ disorders \\ symptoms \\ \hline {\bf S}^2_{k,16} {\bf S}^2_{k,118} \\ \hline {\bf 2}^{21} 10.2 \\ 1877.5 \\ 1465.9 \end{tabular}$	$\begin{array}{c} \mbox{Axis 30} \\ \mbox{stations} \\ \mbox{fm} \\ \mbox{radio} \\ \mbox{broadcast} \\ \hline \\ \mbox{w_k} \\ \mbox{rebroadcast} \\ \mbox{fsn} \\ \mbox{etv} \end{array}$	$\begin{array}{r} {\rm Axis \ 112} \\ \hline \\ {\rm episode} \\ {\rm aired} \\ {\rm show} \\ {\rm tv} \\ \hline \\ {\rm S}^2_{k,30} {\rm S}^2_{k,112} \\ {\rm 1729.4} \\ {\rm 1635.4} \\ {\rm 1600.9} \end{array}$	Axis 30 stations fm radio broadcast w_k canwest ctv wqxr	$\begin{array}{c} \mbox{Axis 123} \\ \mbox{newspaper} \\ \mbox{daily} \\ \mbox{newspapers} \\ \hline {\bf S}_{k,30}^2 {\bf S}_{k,123}^2 \\ \mbox{1941.7} \\ \mbox{1343.4} \\ \mbox{1276.0} \\ \end{array}$	Axis 36 http www html w_k shtml geocities jeancocteau	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	http www htm html w_k mtu stateful proxying		Axis 168 license copyleft gpl licenses w_k copyleft magnatune rightsholder	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$
$\begin{array}{c} \mbox{Axis 16} \\ \hline \mbox{blood} \\ \mbox{organs} \\ \mbox{liver} \\ \mbox{kidney} \\ \hline \\ \hline \\ \mbox{atrophy} \\ \mbox{hemiparesis} \\ \mbox{axonal} \\ \mbox{dysfunction} \\ \end{array}$	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	$\begin{array}{c} \mbox{Axis 30} \\ \hline \mbox{stations} \\ \mbox{fm} \\ \mbox{radio} \\ \mbox{broadcast} \\ \hline \mbox{w}_k \\ \hline \mbox{rebroadcast} \\ \mbox{fsn} \\ \mbox{etv} \\ \mbox{upn} \\ \end{array}$	$\begin{array}{c} {\rm Axis\ 112} \\ \hline {\rm episode} \\ {\rm aired} \\ {\rm show\ } \\ {\rm tv} \\ \hline {\rm S}^2_{k,30} {\rm S}^2_{k,112} \\ {\rm 1729.4} \\ {\rm 1635.4} \\ {\rm 1600.9} \\ {\rm 1534.6} \end{array}$	Axis 30 stations fm radio broadcast w_k canwest ctv wqxr superstation	$\begin{array}{c} \mbox{Axis 123} \\ \mbox{newspaper} \\ \mbox{daily} \\ \mbox{newspapers} \\ \hline $\mathbf{S}_{k,30}^2 \mathbf{S}_{k,123}^2$ \\ \hline 1941.7 \\ 1343.4 \\ 1276.0 \\ 1144.2 \\ \end{array}$	Axis 36 http www htm wk shtml geocities jeancocteau lfc	$\begin{tabular}{ c c c c c } \hline Axis 50 \\ \hline site & & \\ website & \\ forum & \\ photos \\ \hline $S^2_{k,36} S^2_{k,50}$ \\ \hline 1537.9 \\ 1230.3 \\ 871.2 \\ 758.0 \\ \hline \end{tabular}$	$\begin{tabular}{c} http & \\ www & \\ htm & \\ html & \\ \hline w_k & \\ \\ mtu & \\ stateful & \\ proxying & \\ mpls & \\ \hline \end{tabular}$	$\begin{tabular}{ c c c c c }\hline & ip \\ tcp \\ protocols \\ protocol \\\hline $$\mathbf{S}_{k,36}^2$ $\mathbf{S}_{k,73}^2$ \\ $$1425.4$ \\ $$1352.4$ \\ $$1324.2$ \\ $$1264.5$ \\\hline $$1264.5$ \\\hline \end{tabular}$	Axis 168 license copyleft gpl licenses w_k copyleft magnatune rightsholder redistribute	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$
Axis 16 blood organs liver kidney wk atrophy hemiparesis axonal dysfunction neuropathy	$\begin{tabular}{ c c c c c c } \hline Axis 118 \\ \hline disorder \\ mental \\ disorders \\ symptoms \\ \hline {\bf S}^2_{k,16} {\bf S}^2_{k,118} \\ \hline {\bf 2}^{21} 10.2 \\ 1877.5 \\ 1465.9 \end{tabular}$	$\begin{array}{c} \mbox{Axis 30} \\ \mbox{stations} \\ \mbox{fm} \\ \mbox{radio} \\ \mbox{broadcast} \\ \hline \\ \mbox{w_k} \\ \mbox{rebroadcast} \\ \mbox{fsn} \\ \mbox{etv} \end{array}$	$\begin{array}{r} {\rm Axis \ 112} \\ \hline \\ {\rm episode} \\ {\rm aired} \\ {\rm show} \\ {\rm tv} \\ \hline \\ {\rm S}^2_{k,30} {\rm S}^2_{k,112} \\ {\rm 1729.4} \\ {\rm 1635.4} \\ {\rm 1600.9} \end{array}$	Axis 30 stations fm radio broadcast w_k canwest ctv wqxr	$\begin{array}{c} \mbox{Axis 123} \\ \mbox{newspaper} \\ \mbox{daily} \\ \mbox{newspapers} \\ \hline {\bf S}_{k,30}^2 {\bf S}_{k,123}^2 \\ \mbox{1941.7} \\ \mbox{1343.4} \\ \mbox{1276.0} \\ \end{array}$	Axis 36 http www html w_k shtml geocities jeancocteau	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	http www htm html w_k mtu stateful proxying		Axis 168 license copyleft gpl licenses w_k copyleft magnatune rightsholder redistribute copyrights	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$
Axis 16 blood organs liver kidney wk atrophy hemiparesis axonal dysfunction neuropathy myopathy	$\begin{array}{c} \mbox{Axis 118} \\ \hline \mbox{disorder} \\ \mbox{mental} \\ \mbox{disorders} \\ \mbox{symptoms} \\ \mbox{S}^2_{k,16} \mbox{S}^2_{k,118} \\ \mbox{2110.2} \\ \mbox{1877.5} \\ \mbox{1465.9} \\ \mbox{1380.2} \\ \mbox{1300.1} \\ \mbox{1288.3} \end{array}$	Axis 30 stations fm radio broadcast wk rebroadcast fsn etv upn etv wxyz whdh	$\begin{array}{c} \mbox{Axis 112} \\ \hline \mbox{episode} \\ \mbox{aired} \\ \mbox{show} \\ \mbox{tv} \\ \hline \mbox{tv} \\ \hline \mbox{S}^2_{k,30} \mbox{S}^2_{k,112} \\ \mbox{1729.4} \\ \mbox{1635.4} \\ \mbox{1635.4} \\ \mbox{1641.3} \\ \mbox{1392.0} \\ \hline \end{array}$	Axis 30 stations fm radio broadcast w_k canwest ctv wqxr superstation wanbao aor	Axis 123 newspaper daily weekly newspapers S ² _{k,30} S ² _{k,123} 1941.7 1343.4 1276.0 1144.2 1116.1 998.0	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	$\begin{tabular}{ c c c c c c } \hline Axis 50 \\ \hline site \\ website \\ forum \\ photos \\ \hline $S^2_{k,36}$S^2_{k,50}$ \\ 1537.9 \\ 1230.3 \\ 871.2 \\ 758.0 \\ 644.7 \\ 593.3 \\ \hline \end{tabular}$	http www htm html wk mtu stateful proxying mpls vypns kleinrock	$\begin{tabular}{ c c c c c }\hline\hline & $$ip$ tcp $$protocol $$protocol $$protocol $$1425.4 $$1352.4 $$1324.2 $$1264.5 $$798.6 $$796.1 $$$	Axis 168 license copyleft gpl licenses w_k copyleft magnatune rightsholder redistribute	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$
Axis 16 blood organs liver kidney wk atrophy hemiparesis axonal dysfunction neuropathy	$\begin{array}{c} \mbox{Axis 118} \\ \hline \mbox{disorder} \\ \mbox{mental} \\ \mbox{disorders} \\ \mbox{symptoms} \\ \mbox{S}^2_{k,16} \mbox{S}^2_{k,118} \\ \mbox{2110.2} \\ \mbox{1877.5} \\ \mbox{1465.9} \\ \mbox{1380.2} \\ \mbox{1300.1} \\ \mbox{1288.3} \end{array}$	Axis 30 stations fm radio broadcast wk rebroadcast fsn etv upn wxyz	$\begin{array}{c} \mbox{Axis 112} \\ \hline \mbox{episode} \\ \mbox{aired} \\ \mbox{show} \\ \mbox{tv} \\ \hline \mbox{tv} \\ \hline \mbox{S}^2_{k,30} \mbox{S}^2_{k,112} \\ \mbox{1729.4} \\ \mbox{1635.4} \\ \mbox{1635.4} \\ \mbox{1641.3} \\ \mbox{1392.0} \\ \hline \end{array}$	Axis 30 stations fm radio broadcast w_k canwest ctv wqxr superstation wanbao	Axis 123 newspaper daily weekly newspapers S ² _{k,30} S ² _{k,123} 1941.7 1343.4 1276.0 1144.2 1116.1 998.0	Axis 36 http www htm mu w_k shtml geocities jeancocteau lfc uchicago	$\begin{tabular}{ c c c c c c } \hline Axis 50 \\ \hline site \\ website \\ forum \\ photos \\ \hline $S^2_{k,36}$S^2_{k,50}$ \\ 1537.9 \\ 1230.3 \\ 871.2 \\ 758.0 \\ 644.7 \\ 593.3 \\ \hline \end{tabular}$	http www htm html wk mtu stateful proxying mpls ypns	$\begin{tabular}{ c c c c c }\hline\hline & $$ip$ tcp $$protocol $$protocol $$protocol $$1425.4 $$1352.4 $$1324.2 $$1264.5 $$798.6 $$796.1 $$$	Axis 168 license copyleft gpl licenses w_k copyleft magnatune rightsholder redistribute copyrights	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$
$\begin{array}{c} \mbox{Axis 16} \\ \mbox{blocd} \\ \mbox{organs} \\ \mbox{liver} \\ \mbox{kidney} \\ \mbox{wk} \\ \mbox{atrophy} \\ \mbox{hemiparesis} \\ \mbox{axonal} \\ \mbox{dysfunction} \\ \mbox{neuropathy} \\ \mbox{myopathy} \\ \mbox{E}(S^2_{169}S^2_{72}) = 1.70 \end{array}$	$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	$\begin{array}{l} \mbox{Axis 30} \\ \mbox{stations} \\ \mbox{fm} \\ \mbox{radio} \\ \mbox{broadcast} \\ \mbox{wk} \\ \mbox{etv} \\ \mbox{upn} \\ \mbox{wyz} \\ \mbox{whdh} \\ \mbox{E}(S_{44}^2S_{21}^2) = 2.0 \end{array}$	$\begin{array}{c} \underline{\text{Axis 112}} \\ \hline \text{episode} \\ \text{aired} \\ \text{show} \\ \hline \textbf{tv} \\ \hline \textbf{S}_{k,30}^2 \textbf{S}_{k,112}^2 \\ \hline \textbf{1635.4} \\ 1630.9 \\ 1534.6 \\ 1441.3 \\ 1392.0 \\ \hline \textbf{1996} \end{array}$	$\begin{array}{l} \mbox{Axis 30} \\ \mbox{stations} \\ \mbox{fm} \\ \mbox{radio} \\ \mbox{broadcast} \\ \mbox{wk} \\ \mbox{curv wat} \\ \mbox{ctv} \\ \mbox{wqxr} \\ \mbox{superstation} \\ \mbox{wanbao} \\ \mbox{aor} \\ \mbox{E}(S^2_{45}S^2_{103}) = 1 \end{array}$	$\begin{array}{c} \underline{\text{Axis 123}} \\ \underline{\text{newspaper}} \\ \underline{\text{daily}} \\ \underline{\text{weekly}} \\ \underline{\text{newspapers}} \\ \underline{\text{S}_{k,30}^2 \text{S}_{k,123}^2} \\ 1941.7 \\ 1343.4 \\ 1276.0 \\ 1144.2 \\ 1116.1 \\ 998.0 \\ \end{array}$	$\begin{array}{l} \mbox{Axis 36} \\ \mbox{http} \\ \mbox{www} \\ \mbox{htm} \\ \mbox{html} \\ \mbox{shtml} \\ \mbox{geocitics} \\ \mbox{jeancoteau} \\ \mbox{Ifc} \\ \mbox{uchicago} \\ \mbox{artchive} \\ \mbox{E} (S_{40}^2S_{103}^2) = 1 \end{array}$	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	$\label{eq:www} \begin{tabular}{c} \hline http & \\ www & \\ htm & \\ html & \\ \hline mtu & \\ stateful & \\ proxying & \\ mpls & \\ vpns & \\ kleinrock & \\ E\left(S^2_{56}S^2_{101}\right) = 1. \end{tabular}$	$\begin{tabular}{ c c c c c }\hline \hline & ip \\ tcp \\ protocol \\ protocol \\ \hline \\ protocol \\ \hline \\ S^2_{k,36} S^2_{k,73} \\ 1425.4 \\ 1352.4 \\ 1352.4 \\ 1324.2 \\ 1264.5 \\ 798.6 \\ \hline \\ 796.1 \\ \hline \\ 693 \end{tabular}$	Axis 168 license copyleft gpl licenses w_k copyleft magnatune rightsholder redistribute copyrights	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$
$\begin{array}{c} \mbox{Axis 16} \\ \mbox{blocd} \\ \mbox{organs} \\ \mbox{liver} \\ \mbox{kidney} \\ \mbox{wk} \\ \mbox{atrophy} \\ \mbox{hemiparesis} \\ \mbox{axonal} \\ \mbox{dysfunction} \\ \mbox{neuropathy} \\ \mbox{E}(S_{169}^2S_{72}^2) = 1.70 \\ \mbox{Axis 169} \end{array}$	Axis 118 disorder mental disorders symptoms 2110.2 1877.5 1465.9 1380.2 1300.1 1288.3 ¹¹ Axis 72 sexual	$\begin{array}{l} \mbox{Axis 30} \\ \mbox{stations} \\ \mbox{fm} \\ \mbox{radio} \\ \mbox{broadcast} \\ \mbox{rebroadcast} \\ \mbox{etv} \\ \mbox{upn} \\ \mbox{etv} \\ \mbox{upn} \\ \mbox{wxyz} \\ \mbox{whdh} \\ \mbox{E}(S^2_{44}S^2_{121}) = 2.0 \\ \mbox{Axis 44} \\ \mbox{plants} \\ \mbox{plant} \\ \mbox{plant} \end{array}$	$\begin{array}{c} \underline{\text{Axis 112}} \\ \hline \text{episode} \\ \text{aired} \\ \text{show} \\ \hline \textbf{v} \\ \hline \textbf{S}_{k,30}^2 \textbf{S}_{k,112}^2 \\ \hline \textbf{1729.4} \\ 1635.4 \\ 1605.4 \\ 1605.9 \\ 1534.6 \\ 1441.3 \\ 1392.0 \\ \hline \textbf{996} \\ \hline \textbf{Axis 121} \\ \hline \textbf{families} \\ \hline \textbf{family} \\ \end{array}$	$\begin{array}{l} \mbox{Axis 30} \\ \mbox{stations} \\ \mbox{fm} \\ \mbox{radio} \\ \mbox{broadcast} \\ \hline \mbox{wk} \\ \mbox{cavest} \\ \mbox{ctv} \\ \mbox{wqxr} \\ \mbox{superstation} \\ \mbox{wanbao} \\ \mbox{aor} \\ \hline \mbox{E}(S^2_{45}S^2_{103}) = 1 \\ \mbox{Axis 45} \\ \hline \mbox{quantum} \\ \mbox{particles} \\ \hline \end{array}$	$\begin{array}{c} \underline{\text{Axis } 123} \\ \underline{\text{newspaper}} \\ \underline{\text{daily}} \\ \underline{\text{weekly}} \\ \underline{\text{newspapers}} \\ \underline{\text{Newspapers}} \\ 1941.7 \\ 1343.4 \\ 1276.0 \\ 1144.2 \\ 1116.1 \\ 998.0 \\ \hline \underline{\text{Axis } 103} \\ \underline{\text{wavelength}} \\ \underline{\text{light}} \\ \end{array}$	$\begin{array}{l} \mbox{Axis 36} \\ \mbox{http} \\ \mbox{www} \\ \mbox{htm} \\ \mbox{html} \\ \mbox{shtml} \\ \mbox{geocitics} \\ \mbox{jeancocteau} \\ \mbox{Ifc} \\ \mbox{geocitics} \\ \mbox{jeancocteau} \\ \mbox{Ifc} \\ \mbox{uchicago} \\ \mbox{artchive} \\ \mbox{E}(S_{49}^2S_{193}^2) = 1 \\ \mbox{Axis 49} \\ \mbox{court} \\ \mbox{judge} \end{array}$	$\begin{tabular}{ c c c c c } \hline Axis 50 \\ \hline site & & & & & & & & & & & & & & & & & & &$	$\begin{tabular}{ c c c c c } \hline http & \\ www & \\ htm & \\ htm & \\ \hline mtu & \\ stateful & \\ proxying & \\ mpls & \\ ypns & \\ kleinrock & \\ \hline E(S_{56}^2S_{101}^2) = 1. \\ Axis 56 & \\ \hline \end{tabular}$	$\begin{tabular}{ c c c c c }\hline\hline & $$ip$ tcp $$protocols $$protocols $$protocols $$1324.2$$ $$1324.2$$$1324.2$$$1264.5$$$798.6$$$796.1$$$093$$$Axis 101$$voltage $$electrical$$$}\electrical$$$	Axis 168 license copyleft gpl licenses w_k copyleft magnatune rightsholder redistribute copyrights	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$
$\begin{array}{c} \mbox{Axis 16} \\ \mbox{blocd} \\ \mbox{organs} \\ \mbox{liver} \\ \mbox{kidney} \\ \mbox{w_k} \\ \mbox{atrophy} \\ \mbox{hemiparesis} \\ \mbox{axonal} \\ \mbox{dysfunction} \\ \mbox{neuropathy} \\ \mbox{myopathy} \\ \mbox{E}(S^2_{169}S^2_{12}) = 1.70 \\ \mbox{Axis 169} \\ \mbox{female} \\ \mbox{male} \\ \mbox{age} \end{array}$	$\begin{array}{c} \underline{\text{Axis 118}} \\ \hline \text{disorder} \\ mental \\ disorders \\ symptoms \\ \hline \\ \hline \\ \hline \\ \hline \\ \hline \\ \hline \\ \\ \\ \hline \\ \hline \\ \hline \\ \\ \hline \\ \hline \\ \\ \hline \\ \\ \hline \\ \hline \\ \\ \hline \\ \\ \hline \\ \\ \hline \hline \\ \hline \hline \\ \hline \hline \\ \hline \hline \\ \hline \hline \\ \hline \hline \\ \hline \\ \hline \\ \hline \\ \hline \\ $	$\begin{array}{l} \mbox{Axis 30} \\ \mbox{stations} \\ \mbox{fm} \\ \mbox{radio} \\ \mbox{broadcast} \\ \mbox{wk} \\ \mbox{vectors} \\ \mbox{wk} \\ \mbox{etv} \\ \mbox{wyz} \\ \mbox{whdh} \\ \mbox{Pans} \\ \mbox{plant} \\ \mbox{plant} \\ \mbox{flowers} \\ \mbox{flowers}$	$\begin{tabular}{ c c c c c } \hline Axis 112 \\ \hline episode \\ aired \\ show \\ tv \\ \hline \hline S^2_{k,30}S^2_{k,112} \\ 1729.4 \\ 1635.4 \\ 1609.9 \\ 1534.6 \\ 1441.3 \\ 1392.0 \\ \hline 996 \\ \hline Axis 121 \\ \hline families \\ family \\ older \\ \hline \end{tabular}$	$\begin{array}{c} \mbox{Axis 30} \\ \mbox{stations} \\ \mbox{fm} \\ \mbox{radio} \\ \mbox{broadcast} \\ \mbox{wk} \\ \mbox{cawest} \\ \mbox{ctv} \\ \mbox{wqxr} \\ \mbox{superstation} \\ \mbox{wanbao} \\ \mbox{aor} \\ \mbox{E}(S_{45}^2S_{103}^2) = 1 \\ \mbox{Axis 45} \\ \mbox{quantum} \\ \mbox{particles} \\ \mbox{particles} \\ \mbox{particles} \end{array}$	Axis 123 newspaper daily weekly newspapers 1941.7 1941.7 1343.4 1276.0 1144.2 1116.1 998.0 .765 Axis 103 wavelength light	$\begin{array}{c} \mbox{Axis 36} \\ \mbox{http} \\ \mbox{www} \\ \mbox{htm} \\ \mbox{html} \\ \mbox{geocitics} \\ geoci$	$\begin{tabular}{ c c c c c } \hline Axis 50 & \\ \hline site & \\ website & \\ forum & \\ photos & \\ \hline S_{k,30}^2S_{k,50}^2 & \\ 1537.9 & \\ 1230.3 & 871.2 & \\ 758.0 & \\ 644.7 & \\ 593.3 & \\ 616 & \\ Axis 193 & \\ rights & \\ legislation & \\ act & \\ \hline \end{tabular}$	$\label{eq:constraints} \begin{array}{c} \mbox{http} & & \mbox{http} & \mbox{htm} & \mbox{htm}$	$\begin{tabular}{ c c c c }\hline \hline ip & & & & & & & & & & & & & & & & & & $	Axis 168 license copyleft gpl licenses w_k copyleft magnatune rightsholder redistribute copyrights	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$
$\begin{array}{c} \mbox{Axis 16} \\ \hline \mbox{blocd} \\ \mbox{organs} \\ \mbox{liver} \\ \mbox{kidney} \\ \hline \mbox{w_k} \\ \mbox{atrophy} \\ \mbox{hemiparesis} \\ \mbox{axonal} \\ \mbox{dysfunction} \\ \mbox{neuropathy} \\ \mbox{myopathy} \\ \mbox{E}(S^2_{169}S^2_{12}) = 1.70 \\ \mbox{Axis 169} \\ \mbox{female} \\ \mbox{male} \end{array}$	$\begin{array}{c} \mbox{Axis 118} \\ \mbox{disorder} \\ \mbox{mental} \\ \mbox{disorders} \\ \mbox{symptoms} \\ \mbox{symptoms} \\ \mbox{2110.2} \\ \mbox{2110.2} \\ \mbox{21877.5} \\ \mbox{1465.9} \\ \mbox{21300.1} \\ \mbox{1288.3} \\ \mbox{1300.1} \\ \mbox{1288.3} \\ \mbox{1488.2} \\ \mbox{3288.2} \\ 3288$	$\begin{array}{l} \mbox{Axis 30} \\ \mbox{stations} \\ \mbox{fm} \\ \mbox{radio} \\ \mbox{broadcast} \\ \mbox{rebroadcast} \\ \mbox{etv} \\ \mbox{upn} \\ \mbox{etv} \\ \mbox{upn} \\ \mbox{wxyz} \\ \mbox{whdh} \\ \mbox{E}(S^2_{44}S^2_{121}) = 2.0 \\ \mbox{Axis 44} \\ \mbox{plants} \\ \mbox{plant} \\ \mbox{plant} \end{array}$	$\begin{array}{r} \frac{\text{Axis 112}}{\text{episode}} \\ \text{aired} \\ \text{show} \\ \text{tv} \\ \hline \mathbf{S}^2_{k,30} \mathbf{S}^2_{k,112} \\ 1635.4 \\ 1630.9 \\ 1534.6 \\ 1441.3 \\ 1392.0 \\ \hline \textbf{Mathematical} \\ Mathemati$	$\begin{array}{l} \mbox{Axis 30} \\ \mbox{stations} \\ \mbox{fm} \\ \mbox{radio} \\ \mbox{broadcast} \\ \hline \mbox{wk} \\ \mbox{cavest} \\ \mbox{ctv} \\ \mbox{wqxr} \\ \mbox{superstation} \\ \mbox{wanbao} \\ \mbox{aor} \\ \hline \mbox{E}(S^2_{45}S^2_{103}) = 1 \\ \mbox{Axis 45} \\ \hline \mbox{quantum} \\ \mbox{particles} \\ \hline \end{array}$	Axis 123 newspaper daily weekly newspapers S ² _{k,30} S ² _{k,123} 1941.7 1343.4 1276.0 1144.2 1116.1 998.0 .765 Axis 103 wavelength light wavelengths laser	$\begin{array}{l} \mbox{Axis 36} \\ \mbox{http} \\ \mbox{www} \\ \mbox{htm} \\ \mbox{html} \\ \mbox{shtml} \\ \mbox{geocitics} \\ \mbox{jeancocteau} \\ \mbox{Ifc} \\ \mbox{geocitics} \\ \mbox{jeancocteau} \\ \mbox{Ifc} \\ \mbox{uchicago} \\ \mbox{artchive} \\ \mbox{E}(S_{49}^2S_{193}^2) = 1 \\ \mbox{Axis 49} \\ \mbox{court} \\ \mbox{judge} \end{array}$	Axis 50 site website forum photos S ² _{k,36} S ² _{k,50} 1537.9 1230.3 871.2 758.0 644.7 593.3 .616 Axis 193 rights legislation act laws	$\begin{tabular}{ c c c c } \hline http & \\ www & \\ httm & \\ httm & \\ \hline w_k & \\ \hline w_k & \\ \hline mtu & \\ stateful & \\ proxying & \\ wpns & \\ kleinrock & \\ kleinrock & \\ kleinrock & \\ \hline E(S_{56}^*S_{101}^*) = 1. \\ Axis 56 & \\ \hline cpu & \\ microprocessor & \\ \hline \end{array}$	$\begin{tabular}{ c c c c }\hline \hline ip & & & & & & & & & & & & & & & & & & $	Axis 168 license copyleft gpl licenses w_k copyleft magnatune rightsholder redistribute copyrights	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$
$\begin{array}{c} \mbox{Axis 16} \\ \mbox{blocd} \\ \mbox{organs} \\ \mbox{liver} \\ \mbox{kidney} \\ \mbox{w_k} \\ \mbox{atrophy} \\ \mbox{hemiparesis} \\ \mbox{axonal} \\ \mbox{dysfunction} \\ \mbox{neuropathy} \\ \mbox{myopathy} \\ \mbox{E}(S^2_{169}S^2_{12}) = 1.70 \\ \mbox{Axis 169} \\ \mbox{female} \\ \mbox{male} \\ \mbox{age} \end{array}$	$\begin{array}{c} \underline{\text{Axis 118}} \\ \hline \text{disorder} \\ mental \\ disorders \\ symptoms \\ \hline \\ \hline \\ \hline \\ \hline \\ \hline \\ \hline \\ \\ \\ \hline \\ \hline \\ \hline \\ \\ \hline \\ \hline \\ \\ \hline \\ \\ \hline \\ \hline \\ \\ \hline \\ \\ \hline \\ \\ \hline \hline \\ \hline \hline \\ \hline \hline \\ \hline \hline \\ \hline \hline \\ \hline \hline \\ \hline \\ \hline \\ \hline \\ \hline \\ $	$\begin{array}{l} \mbox{Axis 30} \\ \mbox{stations} \\ \mbox{fm} \\ \mbox{radio} \\ \mbox{broadcast} \\ \mbox{wk} \\ \mbox{vectors} \\ \mbox{wk} \\ \mbox{etv} \\ \mbox{wyz} \\ \mbox{whdh} \\ \mbox{Pans} \\ \mbox{plant} \\ \mbox{plant} \\ \mbox{flowers} \\ \mbox{flowers}$	$\begin{tabular}{ c c c c c } \hline Axis 112 \\ \hline episode \\ aired \\ show \\ tv \\ \hline \hline S^2_{k,30}S^2_{k,112} \\ 1729.4 \\ 1635.4 \\ 1609.9 \\ 1534.6 \\ 1441.3 \\ 1392.0 \\ \hline 996 \\ \hline Axis 121 \\ \hline families \\ family \\ older \\ \hline \end{tabular}$	$\begin{array}{c} \mbox{Axis 30} \\ \mbox{stations} \\ \mbox{fm} \\ \mbox{radio} \\ \mbox{broadcast} \\ \mbox{wk} \\ \mbox{cawest} \\ \mbox{ctv} \\ \mbox{wqxr} \\ \mbox{superstation} \\ \mbox{wanbao} \\ \mbox{aor} \\ \mbox{E}(S_{45}^2S_{103}^2) = 1 \\ \mbox{Axis 45} \\ \mbox{quantum} \\ \mbox{particles} \\ \mbox{particles} \\ \mbox{particles} \end{array}$	Axis 123 newspaper daily weekly newspapers 1941.7 1941.7 1343.4 1276.0 1144.2 1116.1 998.0 .765 Axis 103 wavelength light	$\begin{array}{c} \mbox{Axis 36} \\ \mbox{http} \\ \mbox{www} \\ \mbox{htm} \\ \mbox{html} \\ \mbox{geocitics} \\ geoci$	$\begin{tabular}{ c c c c c } \hline Axis 50 & \\ \hline site & \\ website & \\ forum & \\ photos & \\ \hline S_{k,30}^2S_{k,50}^2 & \\ 1537.9 & \\ 1230.3 & 871.2 & \\ 758.0 & \\ 644.7 & \\ 593.3 & \\ 616 & \\ Axis 193 & \\ rights & \\ legislation & \\ act & \\ \hline \end{tabular}$	$\begin{tabular}{ c c c c c } \hline http & \\ www & \\ httm & \\ httm & \\ \hline w_k & \\ mtu & \\ stateful & \\ proxying & \\ mpls & \\ vpns & \\ kleinrock & \\ \hline kleinrock & \\ \hline E(S_{5g}^*S_{101}^*) = 1. \\ Axis 56 & \\ cpu & \\ microprocessor & \\ processor & \\ \hline \end{array}$	$\begin{tabular}{ c c c c }\hline \hline ip & & & & & & & & & & & & & & & & & & $	Axis 168 license copyleft gpl licenses w_k copyleft magnatune rightsholder redistribute copyrights	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$
$\begin{array}{c} \mbox{Axis 16} \\ \mbox{blocd} \\ \mbox{organs} \\ \mbox{liver} \\ \mbox{kidney} \\ \mbox{w_k} \\ \mbox{atrophy} \\ \mbox{hemiparesis} \\ \mbox{axonal} \\ \mbox{dysfunction} \\ \mbox{neuropathy} \\ \mbox{myopathy} \\ \mbox{E}(S_{169}^2S_{72}^2) = 1.70 \\ \mbox{Axis 169} \\ \mbox{female} \\ \mbox{male} \\ \mbox{age} \\ \mbox{infant} \\ \end{array}$	$\begin{array}{c} \begin{tabular}{lllllllllllllllllllllllllllllllllll$	$\begin{array}{l} \mbox{Axis 30} \\ \mbox{stations} \\ \mbox{fm} \\ \mbox{radio} \\ \mbox{radio} \\ \mbox{broadcast} \\ \mbox{rebroadcast} \\ \mbox{etv} \\ \mbox{upn} \\ \mbox{etv} \\ \mbox{whd} \\ \mbox{whd} \\ \mbox{whd} \\ \mbox{plant} \\ \mbox{plant} \\ \mbox{flowering} \\ \mbox{wk} \\ \mbox{rosid} $	$\begin{tabular}{ c c c c c } \hline Axis 112 \\ \hline episode \\ aired \\ show tv \\ \hline V \\ \hline S^2_{k,30}S^2_{k,112} \\ 1729.4 \\ 1635.4 \\ 1605.9 \\ 1534.6 \\ 16441.3 \\ 1392.0 \\ \hline 096 \\ \hline Axis 121 \\ \hline families \\ family \\ older \\ household \\ \hline S^2_{k,44}S^2_{k,121} \\ \hline 4158.0 \\ \hline \end{array}$	$\begin{array}{c} \mbox{Axis 30} \\ \mbox{stations} \\ \mbox{fm} \\ \mbox{radio} \\ \mbox{broadcast} \\ \mbox{wk} \\ \mbox{cawest} \\ \mbox{ctv} \\ \mbox{wqxr} \\ \mbox{superstation} \\ \mbox{wanbao} \\ \mbox{aor} \\ \mbox{E}(S_{45}^2S_{103}^2) = 1 \\ \mbox{Axis 45} \\ \mbox{quantum} \\ \mbox{particles} \\ \mbox{particle} \\ \mbox{particle} \\ \mbox{physics} \end{array}$	$\begin{array}{l} \mbox{Axis 123} \\ \mbox{newspaper} \\ \mbox{daily} \\ \mbox{weekly} \\ \mbox{newspapers} \\ \mbox{weekly} \\ \mbox{newspapers} \\ \mbox{1343.4} \\ \mbox{1276.0} \\ \mbox{1343.4} \\ \mbox{1276.0} \\ \mbox{1144.2} \\ \mbox{1116.1} \\ \mbox{998.0} \\ \mbox{3076.7} \\ \mbox{Axis 103} \\ \mbox{wavelength} \\ \mbox{light} \\ \mbox{wavelength} \\ \mbox{laser} \\ \mbox{3078.7} \\ \mbox{3078.7} \\ \mbox{3078.7} \end{array}$	Axis 36 http www htm htm geocities jeancocteau Ifc uchicago artchive $E(S_{12}^2S_{132}^2) = 1$ Axis 49 court judge courts trial w_k habeas	$\begin{tabular}{ c c c c c } \hline Axis 50 \\ \hline site & & & & & & & & & & & & & & & & & & &$	$\label{eq:constraint} \begin{array}{ c c c } \hline \\ \hline $	$\begin{tabular}{ c c c c }\hline \hline & $$ip$ tcp protocol protocol $$protocol $$1425.4$ 1352.4$ 1352.4$ 1352.4$ 1324.2$ 1264.5$ 798.6$ 796.1$ $$093$ Axis 101$ $$voltage$ electrical circuits $$current$ $$$current$ $$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$	Axis 168 license copyleft gpl licenses w_k copyleft magnatune rightsholder redistribute copyrights	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$
$\begin{array}{c} \mbox{Axis 16} \\ \hline \mbox{blood} \\ \mbox{organs} \\ \mbox{liver} \\ \mbox{kidney} \\ \hline \mbox{w_k} \\ \mbox{atrophy} \\ \mbox{atrophy} \\ \mbox{atrophy} \\ \mbox{atrophy} \\ \mbox{multiple} \\ \mbox{atrophy} \\ \mbox{figures} \\ \mbo$	$\begin{array}{r} \begin{tabular}{lllllllllllllllllllllllllllllllllll$	$\begin{array}{l} \mbox{Axis 30} \\ \mbox{stations} \\ \mbox{fm} \\ \mbox{radio} \\ \mbox{radio} \\ \mbox{broadcast} \\ \mbox{rebroadcast} \\ \mbox{fn} \\ \mbox{etv} \\ \mbox{upn} \\ \mbox{etv} \\ \mbox{wxyz} \\ \mbox{whdh} \\ \mbox{E}(S^2_{44}S^2_{121}) = 2.0 \\ \mbox{Axis 44} \\ \mbox{plant} \\ \mbox{plant} \\ \mbox{plant} \\ \mbox{flowers} \\ \mbox{flow}$	$\begin{tabular}{ c c c c c } \hline Axis 112 \\ \hline episode \\ aired \\ show \\ tv \\ \hline \hline S^2_{k,30} S^2_{k,112} \\ 1729.4 \\ 1635.4 \\ 1600.9 \\ 1534.6 \\ 1441.3 \\ 1392.0 \\ \hline 996 \\ Axis 121 \\ families \\ family \\ older \\ household \\ \hline S^2_{k,44} S^2_{k,121} \\ 4158.0 \\ 4064.1 \\ \hline \end{tabular}$	$\begin{array}{l} \mbox{Axis 30} \\ \mbox{stations} \\ \mbox{fm} \\ \mbox{radio} \\ \mbox{prod}cast \\ \hline \mbox{wk} \\ \mbox{cavest} \\ \mbox{cavest} \\ \mbox{cavest} \\ \mbox{cavest} \\ \mbox{wanbao} \\ \mbox{aor} \\ \mbox{cavest} \\ cavest$	$\begin{array}{r} \underline{\text{Axis } 123} \\ \underline{\text{newspaper}} \\ \underline{\text{daily}} \\ \underline{\text{weekly}} \\ \underline{\text{newspapers}} \\ \underline{\text{s}}_{k,30}^2 \underline{\textbf{s}}_{k,123}^2 \\ \underline{\text{1941,7}} \\ 1343.4 \\ 1276.0 \\ 1144.2 \\ 1114.2 \\ 1114.2 \\ 1114.2 \\ 1146.2 \\ \underline{\text{s}}_{k,45}^2 \underline{\textbf{s}}_{k,03} \\ \underline{\text{wavelength}} \\ \underline{\text{light}} \\ \underline{\text{wavelength}} \\ \underline{\text{light}} \\ \underline{\text{savelength}} \\ \underline{\text{light}} \\ \underline{\text{savelength}} \\ \underline{\text{light}} \\ \underline{\text{sovelength}} \\ \underline{\text{light}} \\ \underline{\text{sovel}} \\ \text$	$\begin{array}{l} \mbox{Axis 36} \\ \mbox{http} \\ \mbox{http} \\ \mbox{www} \\ \mbox{htm} \\ \mbox{htm} \\ \mbox{html} \\ \mbox{geocitics} \\ \mbox{jeancocteau} \\ \mbox{Ifc} \\ \mbox{geocitics} \\ \mbox{jeancocteau} \\ \mbox{Ifc} \\ \mbox{geocitics} \\ \mbox{jeancocteau} \\ \mbox{Ifc} \\ \mbox{axis 49} \\ \mbox{court} \\ \mbox{court} \\ \mbox{judge} \\ \mbox{courts} \\ \mbox{trial} \\ \mbox{habeas} \\ \mbox{declaratory} \end{array}$	$\begin{tabular}{ c c c c c } \hline Axis 50 \\ \hline site & & & & & & & & & & & & & & & & & & &$	$\begin{tabular}{ c c c c c } \hline http & \\ www & \\ httm & \\ httm & \\ httm & \\ \hline w_k & \\ \hline mtu & \\ stateful & \\ proxying & \\ mpls & \\ ypns & \\ kleinrock & \\ \hline kleinrock & \\ \hline E(S_{56}^2S_{101}^2) = 1. \\ Axis 56 & \\ cpu & \\ microprocessor & \\ processor & \\ cpus & \\ \hline w_k & \\ \hline lsi & \\ microelectronic & \\ \hline \end{tabular}$	$\begin{tabular}{ c c c c }\hline \hline ip & & & & & & & & & & & & & & & & & & $	Axis 168 license copyleft gpl licenses w_k copyleft magnatune rightsholder redistribute copyrights	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$
$\begin{array}{c} \mbox{Axis 16} \\ \mbox{block} \mbox{block} \\ \mbox{organs} \\ \mbox{liver} \\ \mbox{kidney} \\ \mbox{wire} \\ \mbox{atrophy} \\ \mbox{atrophy} \\ \mbox{metropathy} \\ \mbox{myoathy} \\ \mbox{myoathy} \\ \mbox{E}(S_{169}^2S_{72}^2) = 1.70 \\ \mbox{Axis 169} \\ \mbox{female} \\ \mbox{age} \\ \mbox{infant} \\ \mbox{wk} \\ \mbox{male} \\ \mbox{vulval} \\ \mbox{faggot} \end{array}$	$\begin{array}{r} \label{eq:constraint} \hline {\bf Axis 118} \\ \hline {\bf disorder} \\ {\bf mental} \\ {\bf disorders} \\ {\bf symptoms} \\ {\bf S}^2_{k,16} {\bf S}^2_{k,118} \\ \hline {\bf 2110.2} \\ {\bf 1210.2} \\ {\bf 1300.1} \\ {\bf 1288.3} \\ 1 \\ {\bf 1288.3} \\ 1 \\ {\bf Axis 72} \\ {\bf sexual} \\ {\bf sex} \\ {\bf homosexual} \\ {\bf heterosexual} \\ {\bf heterosexual} \\ {\bf S}^2_{k,169} {\bf S}^2_{k,72} \\ {\bf 1240.5} \\ {\bf 1191.4} \\ {\bf 981.2} \end{array}$	$\begin{array}{l} \mbox{Axis 30} \\ \mbox{stations} \\ \mbox{fm} \\ \mbox{radio} \\ \mbox{radio} \\ \mbox{wc} \\ \mbox{wc} \\ \mbox{wyz} \\ \mbox{whd} \\ \mbox{wyz} \\ \mbox{whd} \\ \mbox{plants} \\ \mbox{plants} \\ \mbox{flowering} \\ \mbox{wc} \\ \mbox{rosid} \\ \mbox{aryophyllales} \\ \mbox{dicotyledons} \\ \mbox{dicotyledons} \end{array}$	$\begin{tabular}{ c c c c c } \hline Axis 112 \\ \hline episode \\ aired \\ show tv \\ \hline tv \\ \hline S^2_{k,30} S^2_{k,112} \\ 1729.4 \\ 1635.4 \\ 1600.9 \\ 1534.6 \\ 1441.3 \\ 1392.0 \\ \hline 096 \\ \hline Axis 121 \\ \hline families \\ family \\ older \\ household \\ \hline S^2_{k,44} S^2_{k,121} \\ \hline 01000000000000000000000000000000000$	$\begin{array}{l} \mbox{Axis 30} \\ \mbox{stations} \\ \mbox{fm} \\ \mbox{radio} \\ \mbox{broadcast} \\ \hline \mbox{wk} \\ \mbox{canwest} \\ \mbox{ctv} \\ \mbox{wanbao} \\ \mbox{aor} \\ \hline \mbox{ctv} \\ \mbox{wanbao} \\ \mbox{aor} \\ \hline \mbox{cts} \\ \mbox{quantum} \\ \mbox{particles} \\ \mbox{particles} \\ \mbox{particles} \\ \mbox{particles} \\ \mbox{particles} \\ \hline \mbox{wk} \\ \hline \mbox{mesons} \\ \mbox{gluons} \\ \mbox{photon} \\ \end{array}$	$\begin{array}{l} \mbox{Axis 123} \\ \mbox{newspaper} \\ \mbox{daily} \\ \mbox{weekly} \\ \mbox{newspapers} \\ \mbox{seekly} \\ \mbox{newspapers} \\ \mbox{seekly} \\ \mbox{newspapers} \\ \mbox{seekly} \\ \mbox{newspapers} \\ \mbox{seekly} \\ \mb$	$\begin{array}{c} \mbox{Axis 36} \\ \mbox{http} \\ \mbox{www} \\ \mbox{htm} \\ \mbox{htm} \\ \mbox{htm} \\ \mbox{shtml} \\ \mbox{geocities} \\ \mbox{geocities} \\ \mbox{geocities} \\ \mbox{geocities} \\ \mbox{geocities} \\ \mbox{geocities} \\ \mbox{uchicago} \\ \mbox{artchive} \\ \mbox{trice} \\ \mbox{trice} \\ \mbox{court} \\ \mbox{geocities} \\ \mbox{court} \\ \mbox{geocities} \\ \mbox{court} \\ \mbox{geocities} \\ \mbox{court} \\ \mbox{trial} \\ \mbox{wk} \\ \mbox{habeas} \\ \mbox{declaratory} \\ \mbox{conservatorship} \\ \mbox{conservatorship} \end{array}$	$\begin{tabular}{ c c c c c } \hline Axis 50 \\ \hline site website \\ forum \\ photos \\ \hline site \\ scale \\ $	$\label{eq:constraints} \begin{array}{ c c c } \hline \\ \hline $	$\begin{tabular}{ c c c c }\hline \hline ip & & & & & & & & & & & & & & & & & & $	Axis 168 license copyleft gpl licenses w_k copyleft magnatune rightsholder redistribute copyrights	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$
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Table 9: Complementary experimental results to Table 3. For all component pairs (S_i, S_j) in the second subtree of the MST in Fig. 5, the top 6 words and their corresponding $\mathbf{S}_{t,i}^2 \mathbf{S}_{t,j}^2$ values that contribute the most to the $E(S_i^2 S_j^2)$ value are presented.