



**digital
desire
lines**

clues

Desire lines often express what is relevant to us and therefore reveal ourselves. For a long time companies have been interested in the desire lines we leave. One of the first big successes have been Payback cards. They uncovered the shopping habits way more detailed than ever before. Having grown out of its innocent childhood, the internet has become the biggest gathering place. Browsing histories contain huge amounts of data, which can be used to restore the users desire paths in the world wide web.

Coming of age, so called big data does not only restore, but has started to anticipate. By processing and comparing the behaviour of millions of users, they predicting our next steps; foreclosing our desire lines.

Pretty early Amazon begun to use this. Simply by recommending items other users with similar searches looked at. A pretty basic algorithm of anticipating and directing ones desires; rolling out a carpet on the grass.

company

We often rate things by comparing them. These comparisons are hugely influenced by the environment. This is very evident for colours, as Josef Albers exemplary has shown in his work. This is as well true for more complex matter like books or movies. It helps us to rank the unknown.

The company can either ennoble a work or even easier compromise it.

By comparative showing us what others who bought this book like, we can as well be attracted as disgusted.

Deutschland schafft sich ab: Wie wir unser Land aufs Spiel... and over 2 million other books are available for **Amazon Kindle** [Learn more](#)

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DEUTSCHLAND SCHAFFT SICH AB (German) Hardcover – 30 Aug 2010

by Thilo Sarrazin (Author)

★★★★☆ 7 customer reviews

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Seyran Ates



However this is telling more about ourselves than about the subject. In fact we don't know the value of the content yet.

The desire paths of other ones might influence our decision.

Thilo Sarrazins Book has caused a pretty large discussion in Germany about immigration and racism. As he was a successful politician and bussines man, one could consider looking at his theses. Without having read the book the other suggested books tend to speak a clear language about the readers and in reverse about the content.

Among them conspiracy theory, open anti islamics and the old saga *Germania*.



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Kein Schwarz. Kein Rot. Kein Gold: Armut für alle im »Lustigen Migrantenstadl« (German) Hardcover – Sep 2010

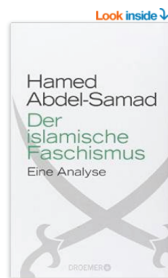
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context

As well it might help to understand the context some content is used for. Furthermore it can reveal the different cultural positions to it.

This comparison just shows the other interest of the viewers of Hitlers *Mein Kampf* on amazon.fr, amazon.de, amazon.com and amazon.co.uk.

Most interesting is that the only book I found ranked on all four sites was *The Communist Manifesto*.

This for example speaks for a academic interest in the topic despite the differences.

Les clients ayant acheté cet article ont également acheté

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the algorithm

Amazon was one of the first big internet firms to work with the desires of their clients. Online they could not only map what their customers were buying, but also see what they were regarding.

The basic algorithm their suggestion system is based on is called item-to-item collaborative filtering.

This algorithm is calculating a similarity for every item in the database based on views and their relations.

With this the system is able to suggest you more or less accurate items in comparison to your views and purchases.

search of user A

...



...

search of user B

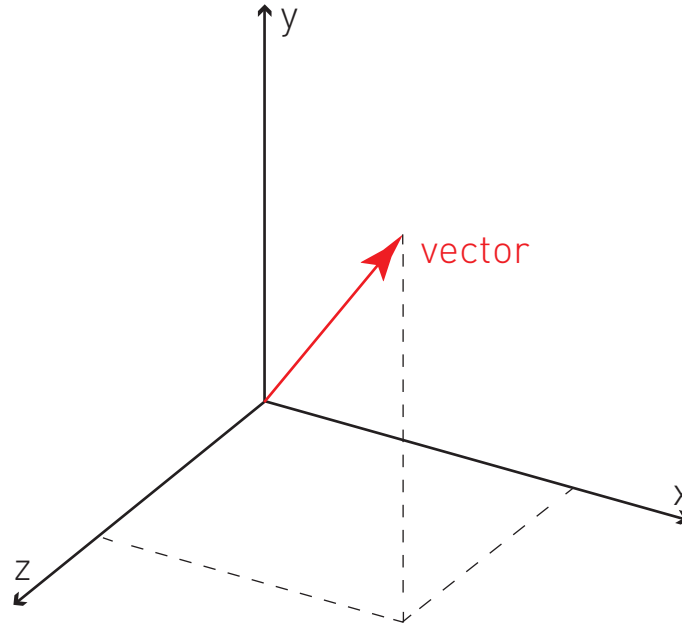
...



...

		1	1	
	1		2	
	1	2		

all the viewed items, here represented through shapes, are combined with their respectively previous and subsequent in a matrix.



A vector is a mathematical object that has a size, called the magnitude, and a direction. For example, a vector would be used to show the distance and direction something moved in.

If you ask for directions, and a person says „Walk one kilometer towards North“, that's a vector. If he'd say „Walk one kilometer“, without showing a direction, it would be a scalar.

Vectors are usually represented as a line with an arrow at the end.

(simple.wikipedia.org/wiki/Vector)

Vectors are often used in 3-dimensional space like in the figure. n-dimensional vectors are mathematical construct for dealing with bigger matrices.

	■	●	▲	★	
■		1	1		→ (0, 1, 1, 0)
●	1		2		→ (1, 0, 2, 0)
▲	1	2			→ (1, 2, 0, 0)
★					→ (0, 0, 0, 0)

the system is storing all of these relation in the matrix. out of this the syststem can read the values for every item in form of a n-dimensional vector. n is the number of all items, in this case four.

$$\cos(\blacksquare \bullet \bullet) = \frac{\begin{pmatrix} 0 \\ 1 \\ 1 \\ 0 \end{pmatrix} * \begin{pmatrix} 1 \\ 0 \\ 2 \\ 0 \end{pmatrix}}{\left| \begin{pmatrix} 0 \\ 1 \\ 1 \\ 0 \end{pmatrix} \right| * \left| \begin{pmatrix} 1 \\ 0 \\ 2 \\ 0 \end{pmatrix} \right|}$$

$$\cos(\blacksquare \bullet \bullet) = \frac{\begin{pmatrix} 0 \\ 1 \\ 1 \\ 0 \end{pmatrix} * \begin{pmatrix} 1 \\ 0 \\ 2 \\ 0 \end{pmatrix}}{\begin{pmatrix} 0 \\ 1 \\ 1 \\ 0 \end{pmatrix} * \begin{pmatrix} 1 \\ 0 \\ 2 \\ 0 \end{pmatrix}}$$

$$\cos(\blacksquare \bullet \bullet) = \frac{(0*1+1*0+1*2+0*0)}{\sqrt{0^2+1^2+1^2+0} * \sqrt{1^2+0^2+2^2+0^2}}$$

$$\cos(\blacksquare \bullet \bullet) = \frac{2}{\sqrt{2} * \sqrt{5}} \approx 0,63$$

Similarity is calculated by comparing vectors. Even n-dimensional vectors can be compared by looking at their cosinus.

Cosinus between 2 vectors is:

$$\cos(\text{sim}) = \frac{\vec{A} * \vec{B}}{|\vec{A}| * |\vec{B}|}$$

The cosinus is telling the angle between the vectors. Is the cosinus 1 the angle is 0° and therefore the similarity is high. Is the cosinus 0 the angle is 90° and the similarity low.

This is a very simplified explanation. As Amazon has several million items and is also calculating purchases and ratings.

However it is the basis of their recommendation algorithm.

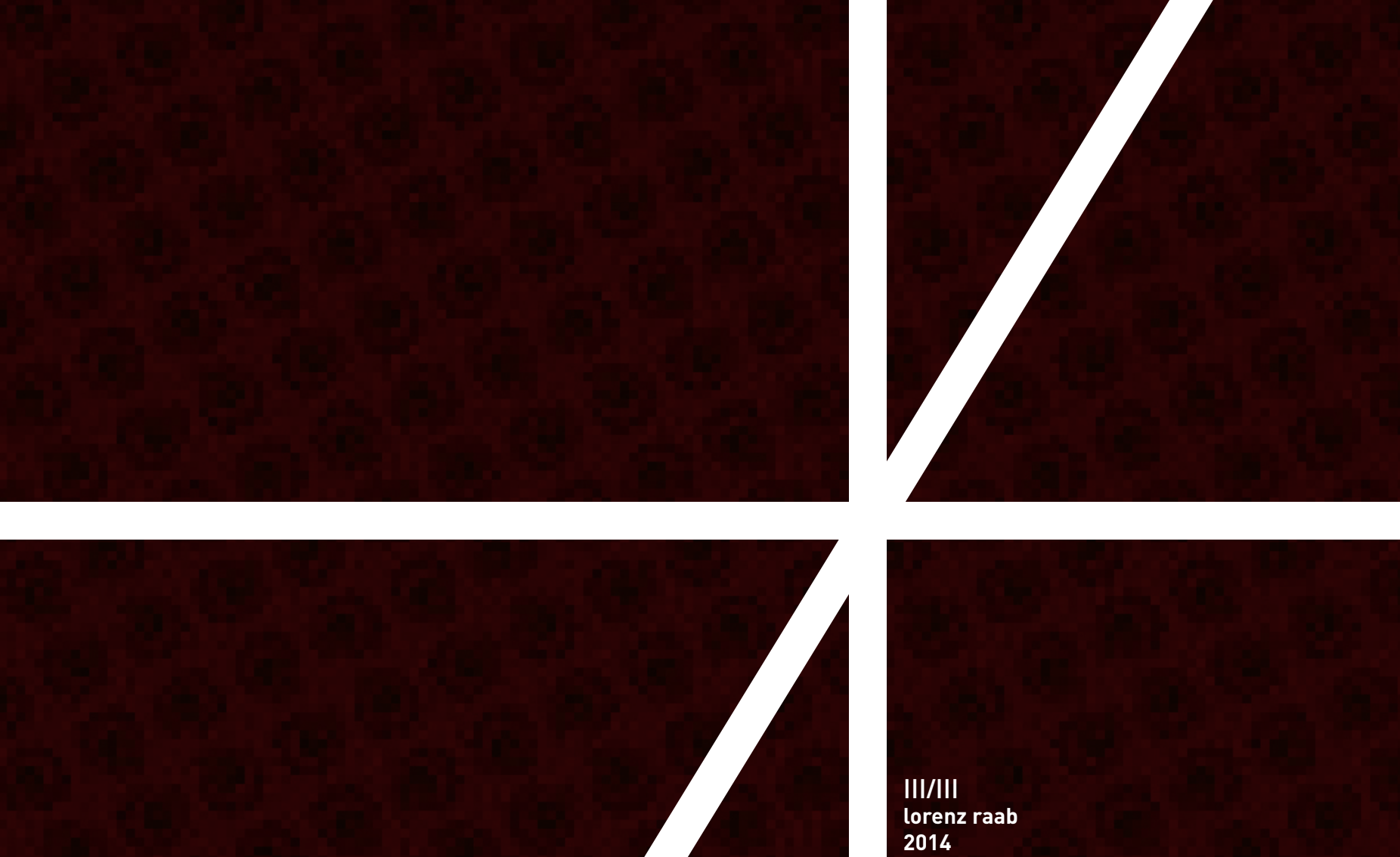
■	(0, 1, 1, 0)	}	similarity ■ ●	$\approx 0,63$
●	(1, 0, 2, 0)		similarity ■ ▲	$\approx 0,63$
▲	(1, 2, 0, 0)		similarity ■ ★	$\approx 0,00$
★	(0, 0, 0, 0)			

when now user C is looking at ■ , the system is comparing the vectors and looking for similartiy. as the closest match are ● and ▲ , user C will get a recomndation for ■ .



as everybody I unfortunately get lots of spam. most of them are very sterotype. but recently I started to get way more specific mails. about graphic desgin courses or adobe software.

I still wonder which bloody website did pass my mail address.



III/III
lorenz raab
2014