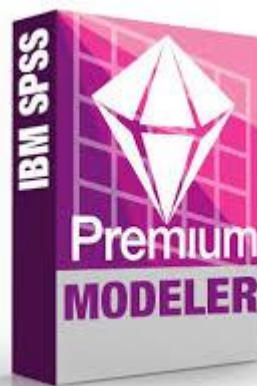
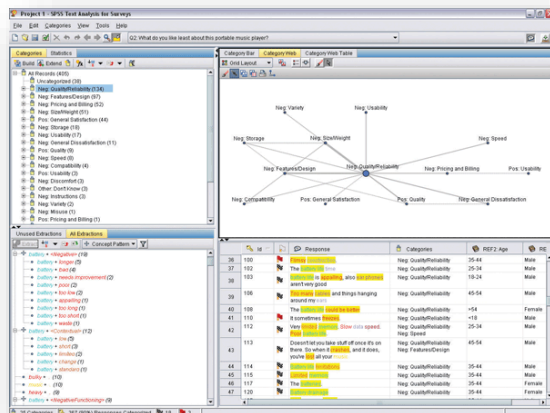


IBM SPSS Modeler Text Analytics



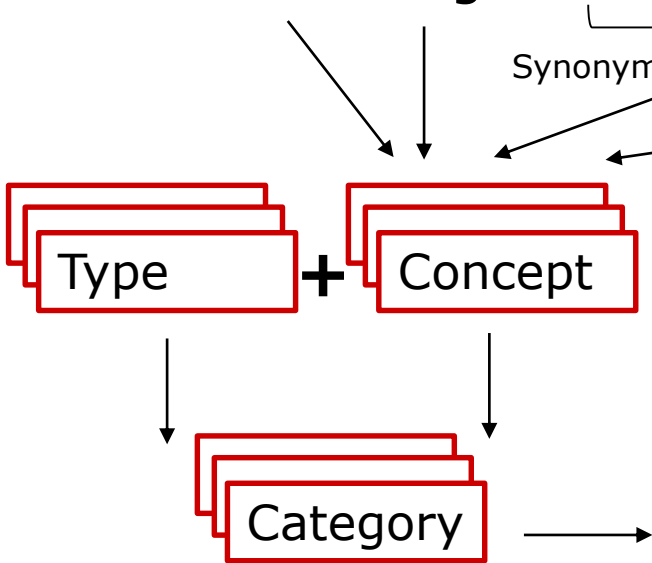
IBM SPSS Modeler Premium Text Analytics



- ❑ From unstructured free text to structured data
- ❑ Uses natural language processing (**NLP**) to reveal conceptual meaning in text
- ❑ Extracts **concepts**, identifies **types** of sentiments (negative, positive, neutral etc.) from text and **categorizes** them
- ❑ Visualizes relationships of concepts to broaden understanding of co-occurrences and popular synonyms
- ❑ Provides rich linguistics resources and allows full configuration and personalization

Natural Language Processing (NLP)

- John used his cell phone to pay the bill.
- Tom bought a mobile phone to his lovely girlfriend.



message	C1	C2	C3	C4	C5	C6	C7
If there was not a desired vehicle available the reps explored all opt...	F	F	T	F	F	F	F
The rental car guy was cute.	F	F	F	F	F	F	F
They were idiots. The car had problems and they were unable to fix...	F	F	F	F	F	F	F
It was good, got the car we wanted without much of a wait in pickin...	F	F	F	F	F	F	F
no wait for pick up and drop off was great, help with luggage, face t...	F	F	F	F	F	F	F
I thought the representative handled the initial situation badly. The ...	F	F	F	F	F	F	F
Everyone was very helpful. The car was ready for me on time and I ...	F	F	F	F	F	F	F
what customer service	F	F	F	T	F	F	F
They did not have the car I wanted. upgraded me to a car I did not li...	F	F	F	F	F	T	F
delayed shuttle, almost missed flight, bad customer service	F	F	F	F	F	F	F
adequate	F	F	F	F	F	F	F
"sorely lacking"	F	F	F	F	F	T	F
Person very friendly but only person working counter	F	F	F	F	F	F	F
They provided good service. It was easy to make on-line reservati...	F	F	F	F	F	F	F
They moved me in and out quickly. The shuttle driver drove like a m...	F	F	F	F	F	F	F
We dealt very little with customer service, and we only walked to the...	F	F	F	T	F	F	F
The car rental company that I went with had very good customer ser...	F	F	F	F	F	F	F
Experience was fine, usually try to get you to upgrade.	F	F	F	F	F	F	F
It took quite a long time, about 45 minutes to an hour. Several atten...	F	F	F	F	F	F	F

Interactive Workbench: Categories & Concepts

Interactive Workbench - Customer_Service

File Edit View Generate Categories Tools Help

Categories and Concepts

Category Bar Category Web Category Web Table

Build Extend Score Display

Category Descriptors Docs

All Documents 200

Uncategorized

No concepts extracted

Neg. Company: Public Image-Reputation 13

fx { brand & { <Negative> }

fx { image & { <Negative> | no | better } }

fx { not reputable }

fx { brandname & { <Negative> | <NegativeFeeling> } }

fx { mail & { unwanted | less } }

fx { pom & { <Negative> | less } }

fx { visit }

fx { name }

fx { repu }

fx { junk }

fx { spam & { <Negative> | less } }

fx { advert & { <Negative> | better | less | more } }

fx { pop-up & { <Negative> | less } }

Pos. Service: Accessibility 30

fx { atmosphere & { <Positive> | <PositiveAttitude> } }

Categories pane

Visualization pane

Pos. Service: Accessibility/Wait Time

Pos. Service: Knowledge

Other: Don't Know

Neg. Service: Attitude

Neg. Product: Design-Features

Neg. Service: Information

Neg. Product: Functioning

Neg. Product: Pricing and Billing

Context: Pricing and Billing

Map Display

397 concepts

Concept	In	Global	Docs	Type
good	fx	55 (4%)	53 (27%)	<Positive>
customer service	fx	53 (5%)	51 (24%)	<CustomerSupport>
car	fx	62 (4%)	50 (25%)	<Products>
friendly	fx	21 (2%)	21 (11%)	<PositiveAttitude>
fast	fx	20 (2%)	20 (10%)	<Positive>
problem	fx	17 (2%)	16 (8%)	<Negative>
excellent	fx	16 (2%)	16 (8%)	<Positive>
no problem	fx	16 (2%)	16 (8%)	<Positive>
staff	fx	18 (2%)	16 (8%)	<CustomerSupport>
helpful	fx	16 (2%)	15 (8%)	<PositiveCompetence>
service	fx	14 (1%)	14 (7%)	<Unknown>
too long	fx	14 (1%)	14 (7%)	<Negative>
experience	fx	14 (1%)	14 (7%)	<Unknown>
company	fx	14 (1%)	14 (7%)	<Unknown>
bad	fx	14 (1%)	14 (7%)	<Negative>
line	fx	9 (1%)	9 (5%)	<WaitTime>
return	fx	9 (1%)	9 (5%)	<Buying>
upgrade	fx	9 (1%)	9 (5%)	<Usability>
long	fx	8 (1%)	8 (4%)	<Negative>
rental car	fx	8 (1%)	8 (4%)	<Products>

Extracted Results

Customer_Service (13)

	Categories
1	Everyone was very helpful. The car was ready for me on time and I didn't have to wait a long time at the counter.
2	It took quite a long time, about 45 minutes to an hour. Several attendants but the line was about 20-25 deep. Check out was very quick. A minute or two was all. Overall a pretty good experience.
3	Was average, nothing out of the ordinary. Took a long time to get the car.
4	Speed up the rental process!
5	The counter girl seemed confused and she had lost our reservations. They directed us to one car and then the wrong car and to come back to forever and they weren't accurate.
6	took a long time to check in, and it would have been nice if someone explained how to get the convertible top down.
7	I had to wait in line for a long time to get and return the vehicle. Also, the car was not clean.

Data pane

35 (51) Categories

Concepts & Types Extraction

- Concepts and their matching types are extracted from text, and are presented in the extracted results pane within the interactive workbench.

Extract 39% concepts Concept

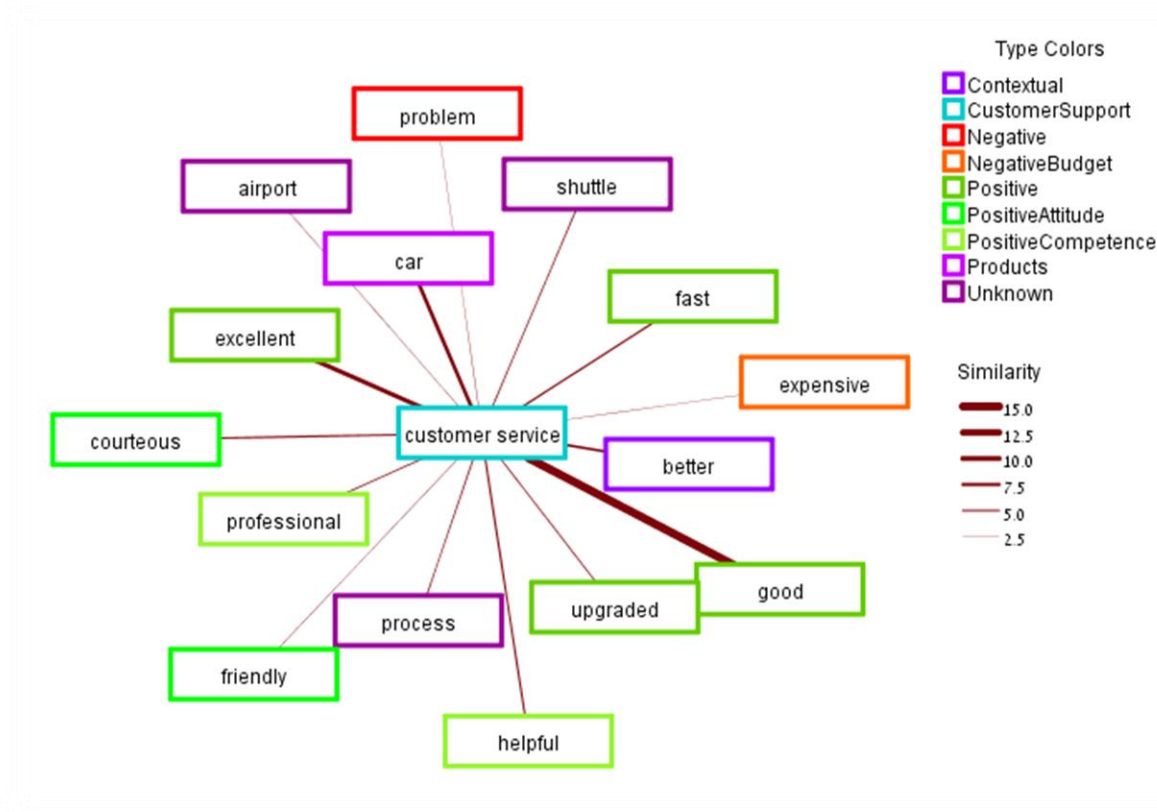
Concept	In	# Global	Docs	Type
customer service	fx	67 (7%)	63 (32%)	<CustomerSupport>
good	fx	55 (6%)	53 (27%)	<Positive>
car	fx	61 (6%)	50 (25%)	<Products>
friendly	fx	21 (2%)	21 (11%)	<PositiveAttitude>
fast	fx	20 (2%)	20 (10%)	<Positive>
no problem	fx	16 (2%)	16 (8%)	<Positive>
excellent	fx	16 (2%)	16 (8%)	<Positive>
staff	fx	18 (2%)	16 (8%)	<CustomerSupport>
problem	fx	17 (2%)	16 (8%)	<Negative>
helpful	fx	16 (2%)	15 (8%)	<PositiveCompetence>
too long	fx	16 (2%)	13 (7%)	<Negative>
experience	fx	11 (1%)	11 (6%)	<Unknown>
company	fx	10 (1%)	10 (5%)	<Unknown>
line	fx	0 (0%)	0 (0%)	<WaitTime>

- The data pane displays the original text and the way it is broken down by NLP. Hovering over marked words displays a tooltip listing their type, synonyms etc.

	Customer_Service (63)	Categories
4	Based on the customer service personnel I encountered most recently, I would say it is vastly preferable for the personnel to be able to at least pretend to care whether the customer ever actually receives a car rental that was reserved months in advance.	Contx: Service
5	I did not need to deal with customer service on my last vacation rental.	Contx: Service
6	I HATE how they pressure you to buy add-on service.	Contx: Service Neg: General Dissatisfacti... Neg: Service: Attitude
7	I never had to deal with customer service. The bus dropped me off at my car, when I returned the car, I had my receipt at that moment. I then got on the bus and left. Never having to wait in a line for a bus.	Contx: Service Neg: Product: Functioning Neg: Service: Accessibility...

Visualization of Relationships

Concept maps display which concepts co-occur and in what frequency. A click on any of the concepts of the map will shift to a new map with the selected concept in the center, for further exploration. Other available visualizations cover category webs, type webs and concept clustering.

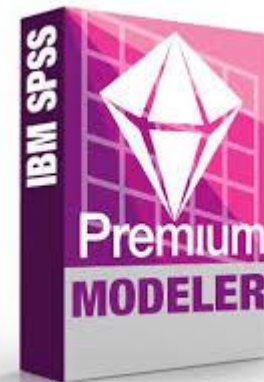


Linguistic Resources

- ❑ Provides a rich variety of resources to support many content domains such as customer service, opinions, finance and banking, employee satisfaction, security intelligence, gene ontology, emoticons and more.
- ❑ Enables creating and importing new resources to grant you full control of NLP execution.
- ❑ Analyses text in English, Dutch, French, German, Spanish or Japanese. Uses SDL translation software to translate and analyze text in Arabic, Chinese and more.

A typical Text Mining Session

- ❑ Import Data
- ❑ Extraction
- ❑ Editing Resources
- ❑ Categorization
- ❑ Model Generation
- ❑ Deployment



Breakdown of Text Mining Process

