

# Chapter 47

## Classifying Consumer Comparison Opinions to Uncover Product Strengths and Weaknesses

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### ABSTRACT

*With the Web 2.0 paradigm, a huge volume of Web content is generated by users at online forums, wikis, blogs, and social networks, among others. These user-contributed contents include numerous user opinions regarding products, services, or political issues. Among these user opinions, certain comparison opinions exist, reflecting customer preferences. Mining comparison opinions is useful as these types of viewpoints can bring more business values than other types of opinion data. Manufacturers can better understand relative product strengths or weaknesses, and accordingly develop better products to meet consumer requirements. Meanwhile, consumers can make purchasing decisions that are more informed by comparing the various features of similar products. In this paper, a novel Support Vector Machine-based method is proposed to automatically identify comparison opinions, extract comparison relations, and display results with the comparison relation maps by mining the volume of consumer opinions posted on the Web. The proposed method is empirically evaluated based on consumer opinions crawled from the Web. The initial experimental results show that the performance of the proposed method is promising and this research opens the door to utilizing these comparison opinions for business intelligence.*

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## INTRODUCTION

With the emergence of Web 2.0, an increasing number of customers are now afforded opportunities to directly express their opinions and sentiments regarding products/services through various channels, such as online forums, wikis, blogs, social networks, and so on. These opinion data coming directly from customers contain a significant amount of potential business value. Studies on mining customer opinions exist (Ashish & Maluf, 2009; Chau & Xu, 2007; Chen, 2006; Hamdi, 2008; Li, 2008; Liu, 2006; Pang & Lee, 2008; Raghu & Chen, 2007); however, these mainly focus on identifying customer sentiment polarities toward products/services. Less work has been conducted on mining a more important type of opinion data, that is, comparison opinions. Customer reviews are often a rich source of comparison opinions. Users typically prefer to compare several competitive products with similar functions, for example,

### Nokia N95 Has a Stronger Signal Than iPhone

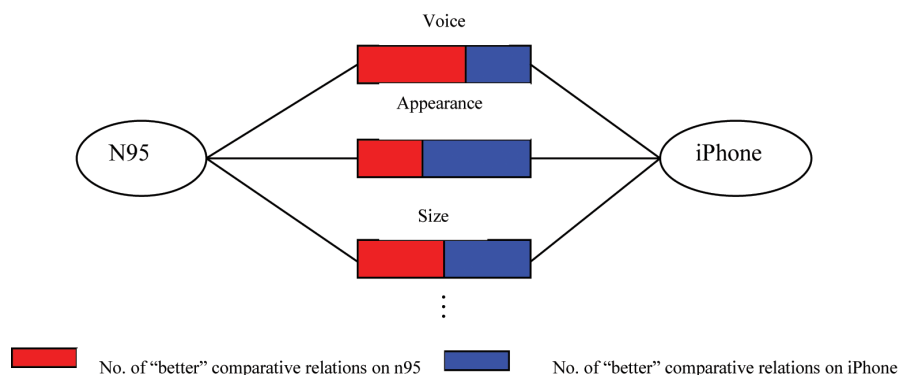
The iPhone has better looks, but a much higher price than the BB Curve.  
Compared with the v3, this V8 has a bigger body, and it has a much worse keyboard than Nokia E71.

For producers, these comparison opinions are precious information sources for identifying the relative strengths and weaknesses of products, analyzing threats from competitors, and designing new products and business strategies. For individual users, these comparison opinions contain rich information for decision-making support through the numerous customer experiences provided.

Mining comparison opinions is a non-trivial task due to the large amount of customer reviews and their informal style. Mature search engine technologies cannot recognize these reviews very well, so for utilizing such a huge volume of user opinion data, a considerable amount of time and labor is spent reading text to recognize and summarize these comparison opinions, which is usually infeasible. But if these comparison opinions can be automatically extracted and expressed succinctly as tuples, such as better (Nokia 95, iPhone, camera) (The Nokia 95 is better than iPhone in the camera attribute.), these tuples are summarized and displayed as comparison relation maps (Figure 1).

These maps visually show which products are better compared with similar products on a given set of features, as expressed by customer reviews. The maps can help product manufacturers quickly recognize their products' strengths or weaknesses, and assist individual users in choosing products according to their preferences.

Figure 1. Product comparison relation map



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