



# Text Analysis of Claim Notes for Subrogation Prediction

Developed for a large P&C Insurance Company by Megaputer Intelligence

## Background

For nearly 100 years, a large insurance company has been a dedicated provider of Property & Casualty (P&C) insurance. With thousands of agents in the US, the company is a well-established provider of both personal and commercial insurance policies.

Payment of claims is the largest expense for P&C insurance companies. However, in some claims, a third party is partially or fully at fault in the policyholder's loss. Subrogation grants an insurer legal rights to pursue action against such third parties or their insurers for payment recovery. Subrogation is about the last task in the list insurers have to address when working on a claim and thus subrogation opportunities are frequently overlooked. It is estimated that the insurance industry misses subrogation opportunities worth about \$15 billion each year.

## Challenge

Every year, the company processes tens of thousands of claims. Each claim comprises several structured data fields, such as a unique claim number, date of the loss, and amount of the original settlement. However, key facts about every incident that affect subrogation potential are dispersed through free text notes related to the claim. These notes are appended at different times and by different people throughout the claim lifecycle: police reports, witness statements, adjustor notes, recorded statements, medical records, and other relevant information.

Adjusters need to perform numerous tasks for each claim, including interviewing all the parties involved in the incident, analyzing police reports, evaluating damages, and negotiating claim settlement. The task of identifying potential subrogation opportunities comes last and requires coherent analysis of all notes related to the claim at once. As claim notes get added over time, it becomes increasingly difficult for adjusters to analyze the entire claim every time there is a new update. In addition, adjusters frequently need to handle multiple claims simultaneously, making the task even more challenging. Hence, subrogation opportunities are frequently overlooked. The company was seeking an automated solution for timely and accurate prediction of subrogation opportunities, as well as performing retrospective analysis on already closed claims.

## Solution

Megaputer utilized its proprietary data and text analysis software, PolyAnalyst™, to develop an automated claims processing solution that extracts key information from the claim notes and uses them as predictors for identifying subrogation opportunities.

Data cleansing was the first task addressed by PolyAnalyst: intelligent correction of misspells and recognizing abbreviations, acronyms, and synonyms. For example, the terms "insured vehicle driver", "IV", "Driver 1", "D1", "ID" and "insured" are all recognized as variations of "insured driver".

The system's entity resolution feature identified related entities in a claim by sifting through lengthy claim notes and recognizing instances of the same entity referenced by different names. For example, one note says



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that the insured driver has a blue car. In a later note, an eyewitness states that a red car rear ended the blue car. In this case, the entity “blue car” should be referenced back to the insured driver’s car. This feature, along with the deep linguistic analysis capabilities of PolyAnalyst, enabled data analysts to accurately extract 700+ attributes covering key information about each claim, such as type of collision, vehicle point of impact, driver actions, liability and injuries of all parties, and many more.

The solution develops a predictive model for identifying subrogation opportunities based on the analysis of historical claim records. This predictive model provides a subrogation-likelihood score, key reasons for making the claim subrogatable, and the expected amount of recovery. It enables the company to make informed decisions on which cases to pursue for subrogation first in order to minimize effort and maximize returns.

Every time the notes are updated, the claim is scored again for its subrogation potential. The solution can integrate seamlessly into the company’s claim processing workflow, logging the identified subrogation opportunities in a case management system for further investigation. Claim adjusters can view a convenient summary of the claim and drill down to the underlying notes with key patterns highlighted. Furthermore, the solution can capture cases when the company itself might become the subrogation or litigation target.

## Results & Benefits

The main benefits of implementing the automated subrogation prediction solution include:

- **Increased efficiency.** The solution predicts claims with subrogation potential and presents key claim facts in a tabular format. These tabular results can be easily accessed via web reports. Not only does this help claim adjusters efficiently analyze claims but it also aids in arbitrations.
- **Faster payment recovery.** Early identification of subrogation opportunities results in a higher probability of payment recovery as well as quicker settlement with the third party.
- **Maintaining optimum reserves.** Accurate subrogation prediction helps the company plan for and maintain optimal levels of reserve funds to cover anticipated payouts. This reduces the risk of insufficient or redundant reserves.
- **Improved top line.** Identifying and pursuing subrogation opportunities through retrospective analysis of previously closed claims missed through manual analysis increases revenue. Armed with accurate predictions, claim adjusters can prioritize and focus on claims that have a greater probability of generating the most benefit for the company.
- **Litigation prediction and enhanced protection.** The solution can predict potential subrogation cases and lawsuits that may be levied against the insurance company itself. Thus, the company can take proactive measures to contain and defend against these situations as well as budget accurate reserve levels for settling potential future litigations.

Over and above making the process efficient, the implementation of Megaputer’s automated subrogation prediction solution provided tangible improvements to the company’s payment recovery process. The solution improved subrogation recovery by 4.8%, which translates to nearly \$608,000 in additional revenue for every 100,000 claims. By utilizing the feedback loop, the solution’s predictive algorithms can be fine-tuned further, providing the company with increased subrogation recovery revenues in the future.

