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SpeechCycle Opens "Grammar Factory" for Rich Speech Applications

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A new hosted offering by SpeechCycle ("nRich Grammar Factory") puts data in the hands of companies to build new grammars, ensuring better recognition rates and higher levels of caller satisfaction with voice self-service. The solution marks a milestone in Recombinant Telephony by moving grammar development into the cloud.

Taking on the Big Issues

For years, executives at business enterprises of all sizes have found speech self-service to be difficult to deploy, expensive to tune, or both. "Too many PhD's!" they lament, noting that the heavy lifting associated with insanely great speech applications inevitably requires input from "speech scientists" for design and development, and "go-fasters" (who optimize algorithms and decision rules that recognize context) to improve accuracy and, thus, make for a better overall user experience.

Enter SpeechCycle, the six-year-old hosted voice application service provider founded as TelEureka. Today, they hold a ribbon-cutting ceremony for a new hosted service called the *n*Rich Grammar Factory. Clients send SpeechCycle a set of logs from their IVR systems over a secure electronic link and the company uses the data to build new grammars that ensure better recognition rates and higher levels of caller satisfaction.

Better Living Through Dynamic Grammars

Roberto Pieraccini, co-founder and CTO of SpeechCycle, expressed his belief that better grammars are crucial pieces that companies can use to provide voice self-service. "We think if you have enough data you can do better when you do the handcrafting," he elaborated. In terms of Recombinant Telephony, the prospect of constantly improving grammars based on analysis of the most recently captured conversations, puts powerful resources in the hands of either internal or third-party developers.

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Pieraccini has observed hesitation on the part of customer care professionals to make adjustments to existing applications. In many cases, companies have found that changing a single prompt has the potential to degrade IVR performance, requiring expensive intervention from the vendor or third-party professional service organizations. By contrast, SpeechCycle's Grammar Factory offers performance enhancement and tuning "as a service." Put simply, the system captures the results of interactions, processes them with a combination of both computer and human analytics, and then echoes back with a database of utterances (a "grammar") that makes the speech recognition resources in an application more reliable.

Adding Certainty to a Dynamic Process

If the idea of a "grammar factory" may sound like a bit of futuristic fantasy, SpeechCycle's experience in its core hosting business makes it a credible supplier. The company has already built a profitable, sustained business by constantly refining the grammars underlying automated customer care and technical support for broadband communications network operators.

It has achieved impressive scale supporting processes that include remote fault detection and diagnosis accompanied by step-by-step directions for spoken directions in problem remediation for cable modems, set-top boxes or routers. Given that network operator services constantly change – and problems that customers encounter are correspondingly subject to change – SpeechCycle has long-standing, firsthand experience in grammar development.

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This experience gives SpeechCycle the confidence to offer its customers continuous improvement for an agreed-upon expense rate. It is designed to be relatively inexpensive even as applications scale up. The service is customarily offered in conjunction with a consulting engagement, whereby SpeechCycle is also able to monitor interactions to detect and remediate other application deficiencies, such as total semantic failures ("no match found").

Value Enhanced Over Time

The value of stored utterances increases over time. With the new service, SpeechCycle is ready to share the wealth with its clients. Accordingly, this must be the back-story for the nRich Grammar Factory branding. The marketing material promises three specific service elements:

- Secure IVR & Application Data Extraction: Which uses a secure communications link to capture caller interaction data and transmits it to the SpeechCycle Ops Center where they leverage the dialogue components captured over the past six years of operation.
- Caller Data Tagging Operations: Where human intervention plays an important role and SpeechCycle's so-called "TagTeam" assigns categories to IVR and application business logic to support grammar creation.
- Data Conditioning & Grammar Creation: With the utterances and assigned tags, SpeechCycle produces new grammars for the targeted speech self-service

applications (addressing the IVR, applications server, or both).

The "secret sauce," in this case, is the "TagTeam." SpeechCycle has derived the proper balance between automation and human intervention. As Roberto Pieraccini explains, "we could have an army of speech scientists, but we prefer the automated approach. We have the tools to get this data and automate the process of attaching 'tags' which explains the meaning." The TagTeam gets involved in the process of identifying important terms and assigning categories; the rest is automated.

SpeechCycle's nRich Grammar Factory marks a milestone for Recombinant Telephony by moving grammar development into the cloud. It treats past utterances as building-blocks for improved interaction through self-service resources. This approach has a familiar ring to it, dating back to the early offerings of Tuvox, Voxify, Apptera and Fluency. But those comparisons are inaccurate. According to Pieraccini, SpeechCycle has made a radical leap forward is in its technology. "The grammar changes automatically," he explains. "We don't use 'rules-based grammars.' It's purely statistical, and when it's done properly it greatly outperforms rules-based grammars."

The ideal result is an affordable approach to supporting complex grammar development and tuning over time, independent of the speech recognition engine that's employed, be it Nuance, Loquendo or IBM.

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