Deep “KNOWLEDGE” in the
Language Engineering Domain

♦ LE Activities of the Company

• Speech Processing
  * Speech Recognition (Hidden Markov Modelling, TDNNs)
    ◊ Isolated Word
    ◊ Connected Digits/Words
    ◊ Keyword Spotting
    ◊ Continuous Speech
  * Speaker Verification (GMMs)
    ◊ Text Dependent
    ◊ Text Independent
  * Speech Synthesis
  * Speech Coding
  * Speech Understanding
    ◊ Language Modelling
    ◊ Dialogue Control

• Natural Language Processing
  * Morphosyntactic and Semantic processing
  * Natural Language Generation
  * Intelligent Spellers
  * Interactive Corpus-based Translation drafting tools
  * Grammatical and Style Checkers
  * Natural Language Interfaces
  * Multilingual Library Automation Systems

• Resources
  Speech Database for 5000 speakers (11 European languages, 9 Dialects)
  Electronic Dictionaries (Monolingual [Greek], Bilingual [Greek-English, English-Greek])
  Multilingual Thesaurus and Terminological Database
  Hybrid Natural Language Generator (template-based + phrase-based)
  Greek PC-Kimmo Morphological Processor
  Greek Syntactic Parser
  Semantic Grammar (domain-oriented, utilised in operating systems applications)

♦ Selected RTD Projects

• ACCESS (LE-1 1802): Automated Call Center through Speech Understanding System
• VASME (TRANSPORT PL-00010): Value-Added Services for Maritime Environment
• DIALOGOS (EPET II): Improvement of man-machine communication using linguistic technologies
• SPEECHDAT (TELEMATICS LE-2 4001): Collection of a speech database from 5000 speakers
• TRANSLIB (LIB93 - 3038): Advanced Tools for Accessing Multilingual Library Catalogues
• LOGOS (STRIDE-15): Development of the Language and Speech Industry
• BECOS (EURECA EU-385): A Natural Language Front-End to Databases with Speech Facilities
Selected Products

- **EMPHASIS** Digital Signal Processing Environment. EMPHASIS is a completed tool supporting a variety of functionalities such as speech analysis, parameter presentation and modification, pitch analysis and formant tracking, manual segmentation and labelling, real time FFT and acquisition of speech signals.

- **ORPHEUS** Speaker independent word spotting. ORPHEUS is a small-medium (10-500 words) vocabulary, speaker independent, word spotting system that forms the central module in a variety of customized applications.

- **SESAMI** Text independent speaker recognition. SESAMI is a high accurate, text-independent speaker recognition (verification and identification) system that can be used also through public telephone network.

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