



**H.F.R.I.**  
Hellenic Foundation for  
Research & Innovation

**Description of the funded research project**  
**2nd Call for H.F.R.I. Research Projects**  
**to Support Post-Doctoral Researchers**

Title of the research project:

**Linguistic Perspectives on Dementia: an investigation of lexical, syntactic & content complexity in the narratives of Greek speaking patients with Mild Cognitive Impairment and Alzheimer's Disease (DemLENS)**



**Principal Investigator:** Maria Kaltsa

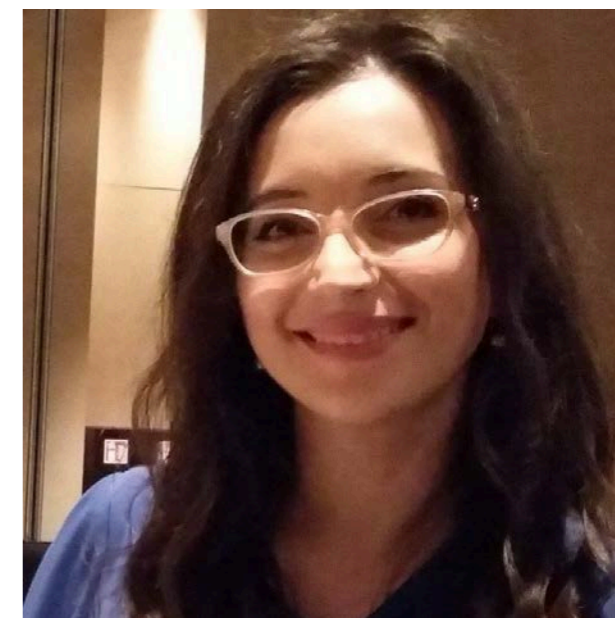
**Reader-friendly title:** Linguistic Perspectives on Dementia

**Scientific Area:** Humanities & Arts

**Institution and Country:** Aristotle University of Thessaloniki (AUTH), Greece

**Host Institution:** Department of Theoretical & Applied Linguistics, School of English, Faculty of Philosophy, AUTH

**Project webpage:** [demlens.enl.auth.gr](http://demlens.enl.auth.gr)



**Budget: 135.000,00 €**

**Duration: Dec 2020 – Dec 2023**

## Research Project Synopsis

Currently 44.3 million people suffer from dementia with severe consequences on the individual's quality of life and well-being and this number is forecasted to triple by 2050 due to increasing life expectancies. Thus, the investigation for early diagnosis of Alzheimer's Disease (AD) is imperative. Most descriptions of the clinical and cognitive features of AD highlight deficits mainly in memory ability, while the in-depth understanding of the language deficits of people with dementia remains limited. The overarching goal of DemLENS is to investigate the key linguistic characteristics of Greek speakers with dementia and the decline of language skills due to changes in cognitive function. DemLENS' novelty lies on its interdisciplinary research methodology since it will integrate the clinical evaluation, the neuropsychological assessment, neuroimaging analysis and thorough linguistic profiling via language production data. Specifically, it will examine the lexical, syntactic and content complexity of spoken language of Greek speakers elicited through sentence repetition, single picture description, picture sequence narratives and personal narratives. The participants of the study are (a) young healthy adults, (b) healthy elders (age and education matched to clinical groups), (c) patients with preclinical AD identified as patients with Subjective Cognitive Impairment (SCI), (d) patients with Mild Cognitive Impairment (MCI) and (e) patients with Alzheimer's Disease (AD) at the mild/moderate stages. The examination of narrative production along the life span aims at identifying the indicators of language divergence that could help the early diagnosis of AD, thus facilitating the clinical process in distinguishing those with MCI/AD from those who are cognitively intact. These outcomes will potentially help in the implementation of language interventions that focus on those specific language features that appear to be most vulnerable.

## Project Originality

DemLENS' novel character lies on its interdisciplinary methodology for data collection and analysis since it integrates the clinical evaluation, the neuropsychological assessment, neuroimaging analysis with the use of Magnetic Resonance Imaging (MRI) and thorough linguistic profiling via language production data. Currently, there is a gap in research with regard to the linguistic profiling of patients with dementia and its relation to the severity of cognitive decline due to AD. DemLENS will fill the current gap as there is no research in Greek with the use of narration as a means to extract information on the formal characteristics of language production both in unimpaired and clinical Greek speaking populations, thus examining both healthy aging and AD effects on expressive language skills. The compilation of a database of narratives of speakers with dementia and analysis of this data constitute an original contribution in dementia research and existing databases which is essential for basic research and clinical intervention. Addition, the mapping of language and cognition across the dementia continuum will enable us (a) to disentangle healthy aging and AD effects in expressive language skills via varied language elicitation techniques and (b) to identify linguistic indicators in the narrative discourse of Greek speaking clinical populations for the early diagnosis of AD. The final major innovation of the project is the development of a language intervention protocol for Greek speaking patients with dementia. This protocol is expected to have a long-term impact on the health care services for patients, thus, enhancing their opportunities for social integration. Overall, DemLENS serves as a major step to increase evidence-based dementia research and facilitate the translation of the best available evidence into practice for researchers, clinicians, patients and policy makers.

## Expected Results & Research Project Impact

DemLENS is a TRL 6 project and is expected to contribute to science and advance current knowledge at both theoretical and applied levels. At a theoretical level, the study will inform our understanding of key language mechanisms related to dementia. At the applied level, DemLENS brings together a multidisciplinary team of experts for the development of the first database of Greek speaking patients with MCI and AD. It will provide theoretically solid and carefully identified linguistic indicators related to the decline of cognitive skills due to aging and AD which can facilitate significantly the clinical process. As a result, short and long term economic benefits as well as important social benefits are expected to emerge. Given that the increase in average lifespan across the world has been accompanied by an unprecedented upsurge in the occurrence of dementia the need for the provision of quality and cost effective health care is imperative. An early diagnosis of AD along with guidelines on which types of linguistic cues and intervention procedures are more efficient for enhancing language skills aim towards a more personalized course of treatment for different individuals within the dementia continuum. In this way, DemLENS contributes to the maintenance of independence and inclusion in society of individuals with dementia, while improving their quality of life and their social integration. Therefore, the impact of the research on this clinical population as well as their caregivers, families and broader social network is expected to be high. Lastly, DemLENS will use a continuously enriched internet platform to support patients with dementia during the project but also long after its completion.

## The importance of this funding

The H.F.R.I. funding of the DemLENS project has an imminent positive impact on the career options available to the research team and contributes to the prevention of the constant brain drain Greece is experiencing due to large-scale emigration of people with high academic/technical skills to foreign countries. Maria Kaltsa as a PI will gain experience in the administration of a research grant and will develop critical leadership skills required for the managing of a research team while ensuring the reliability of the research design, conduct and reporting of DemLENS' outcomes. The funding supports the dissemination activities of the project, such as open access publications, the engagement in new initiatives and aids the development of new collaborations with researchers in various disciplines. The funding provides financial stability to the PI so as to continue her academic path as an independent researcher with the potential to foster distinguished partnerships and attract further funding; thus, it significantly improves her career prospects in academia.



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