

TEDI:

Μοντελοποίηση γνώσης και οντορολογίες

Ραφαήλ Γιανναδάκης
(TALOS-AI4SSH, Πανεπιστήμιο Κρήτης)
giannadakis.uni@gmail.com

Εκπαίδευση στο πλαίσιο του Internship Program του Εργαστηρίου Τάλως

7 Αυγούστου 2025



Εισαγωγή

- **knowledge** (Oxford Dictionary of English):
 1. “facts, information, and skills acquired through experience or education; the theoretical or practical understanding of a subject.”
 2. “awareness or familiarity gained by experience of a fact or situation”



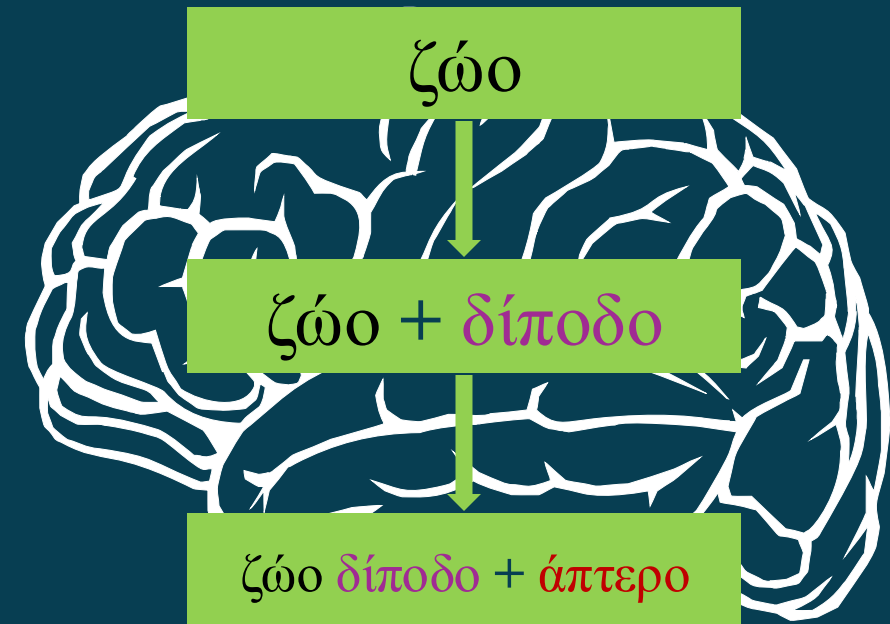
Εισαγωγή

ὄρος, ὀρισμός, γνῶσις

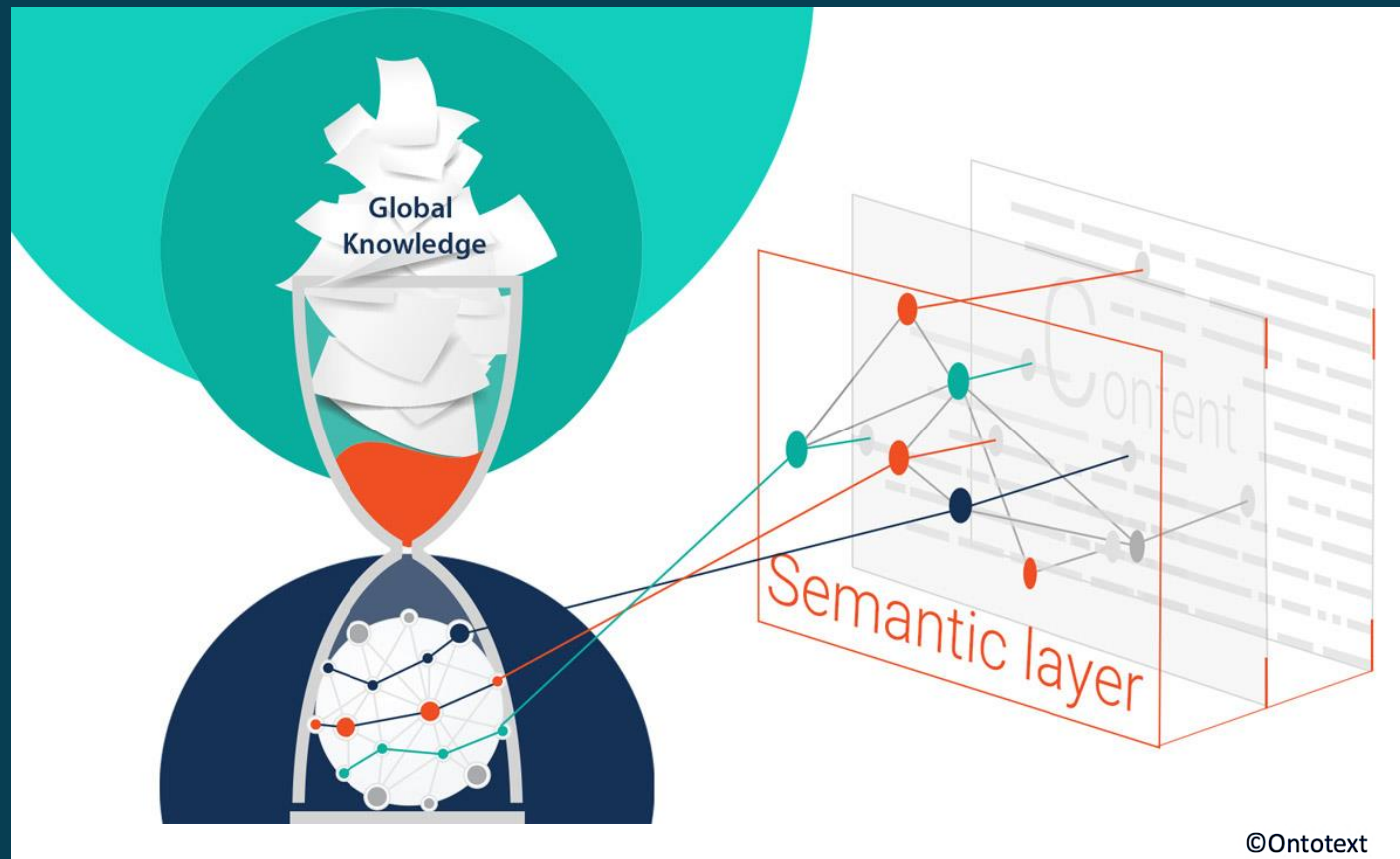
Ὅρος λόγος ἐκ διαφορᾶς καὶ γένους συγκεείμενος.
(Plato, *Definitions*: 414d-10)

οὐδὲν γὰρ ἕτερόν ἐστιν ἐν τῷ ὀρισμῷ πλὴν τὸ πρῶτον λεγόμενον γένος καὶ αἱ διαφοραί· τὰ δ' ἄλλα γένη ἐστὶ τό τε πρῶτον καὶ μετὰ τούτου αἱ συλλαμβανόμεναι διαφοραί, οἷον τὸ πρῶτον ζῷον, τὸ δὲ ἐχόμενον ζῷον δίπουν, καὶ πάλιν ζῷον δίπουν ἄπτερον·
(Aristotle, *Metaphysics*: Z 1037b29-33)

ὅτι πάντων ἡ γνῶσις ἢ ὁμοιότητί τινι καὶ ταυτότητι γίνεται ἢ ἀνομοιότητι καὶ ἐτερότητι, [...] καὶ τὴν γε φύσιν τοῦ ταύτου καὶ τοῦ ἑτέρου ἐν τῇ συστάσει ταύτης μεμίχθαι φασί.
(*Suda Lexicon*: γνῶσις)



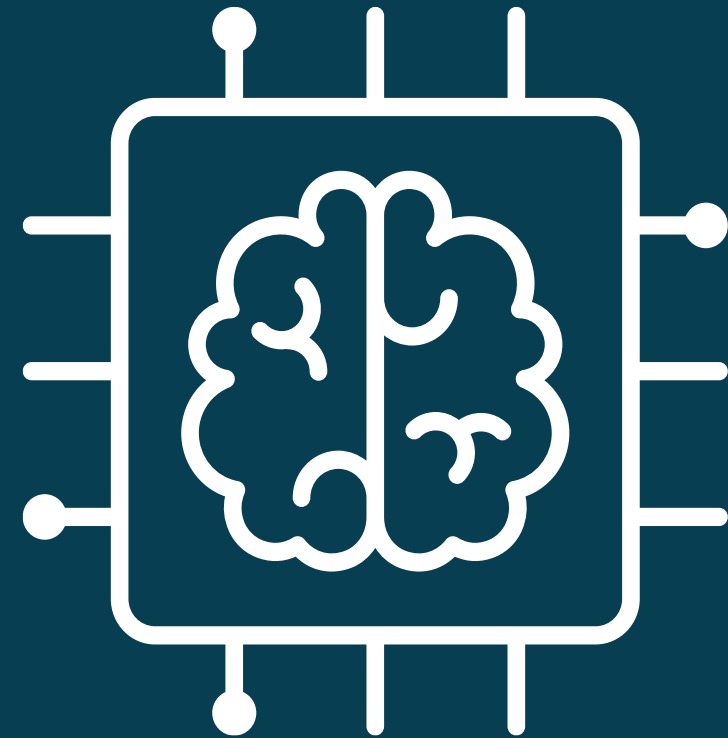
Εισαγωγή



Εισαγωγή

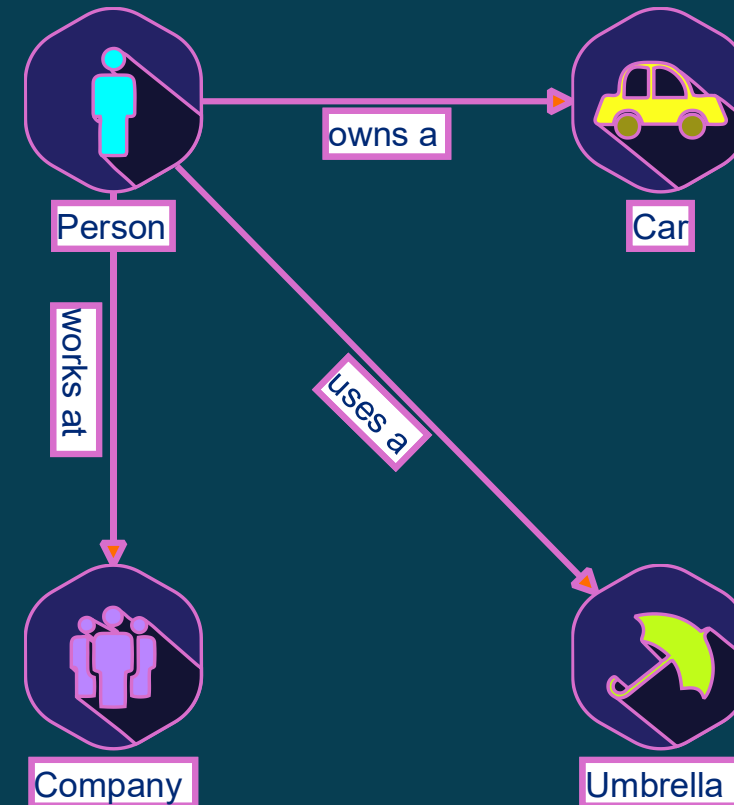
Knowledge modeling

“A process of creating a computer interpretable model of **knowledge** or standards about a language, domain, or process(es). It is expressed in a data structure that enables the knowledge to be stored in a **database** and be interpreted by software”.
(expert.ai, ‘Knowledge Model’)



Οντολογία

“An **ontology** is a shared description of **concepts** and **relationships** of a domain expressed in a formal and computer readable language” (Roche).

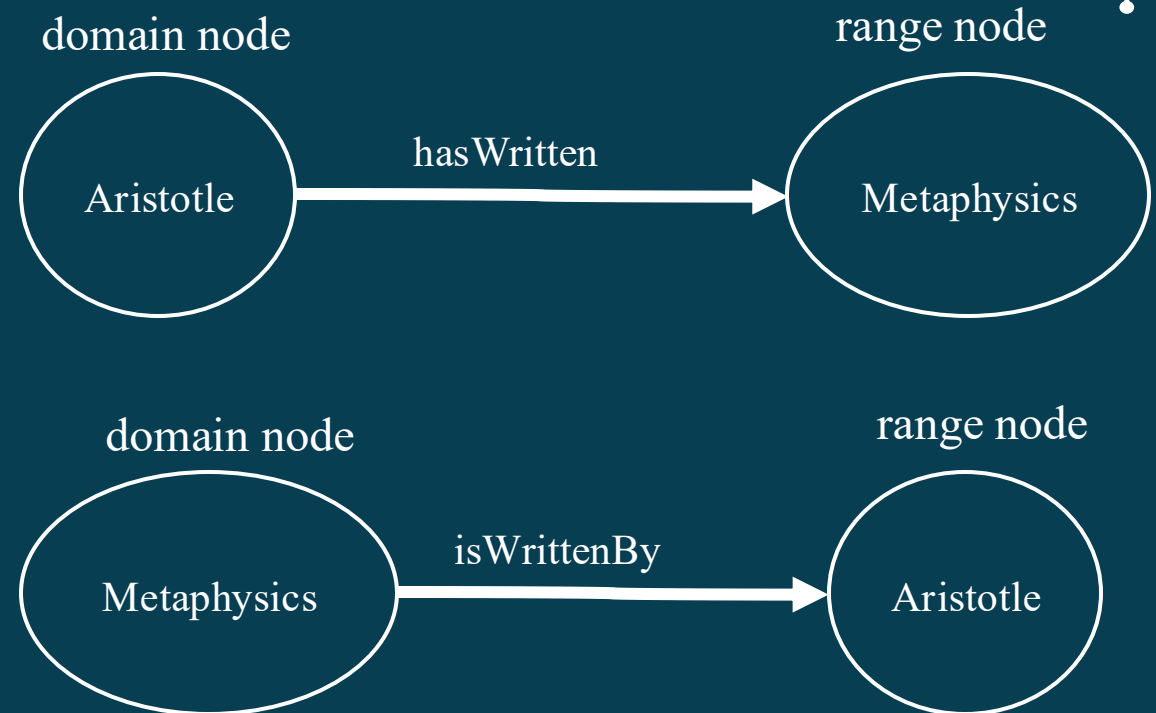


Visualizing an Ontology. yWorks. Retrieved June 27, 2024, from <https://www.yworks.com/use-case/visualizing-an-ontology>

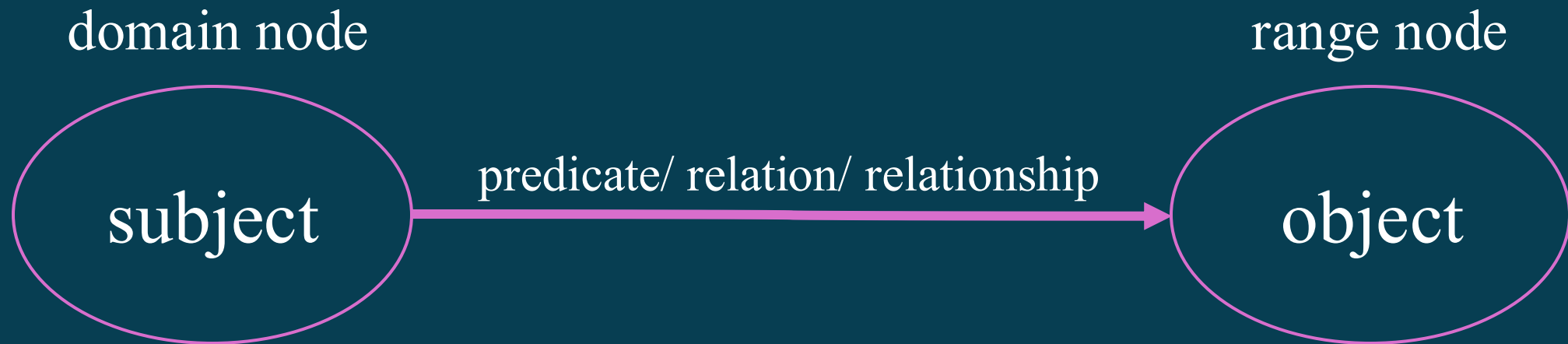
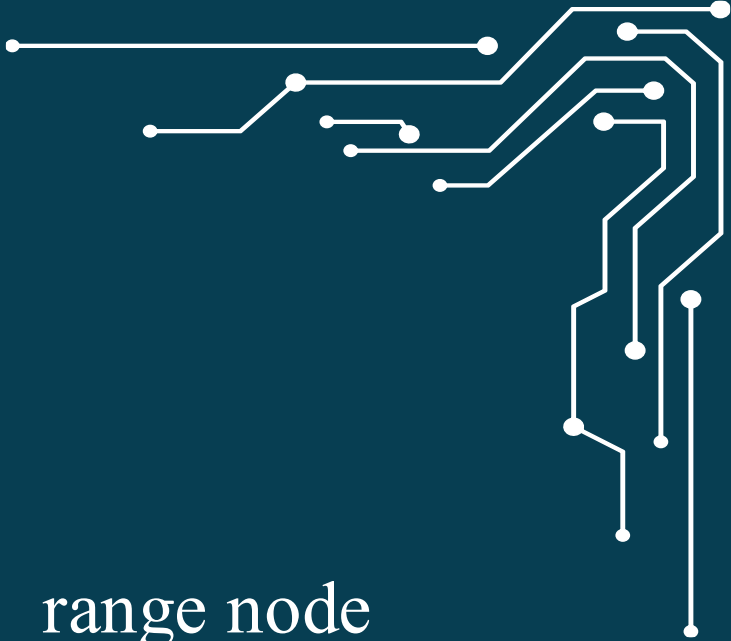
Οντολογία

“Ontologies are used to capture knowledge about some domain of interest. An ontology describes the concepts in the domain and also the relationships that hold between those concepts. Different ontology languages provide different facilities.”

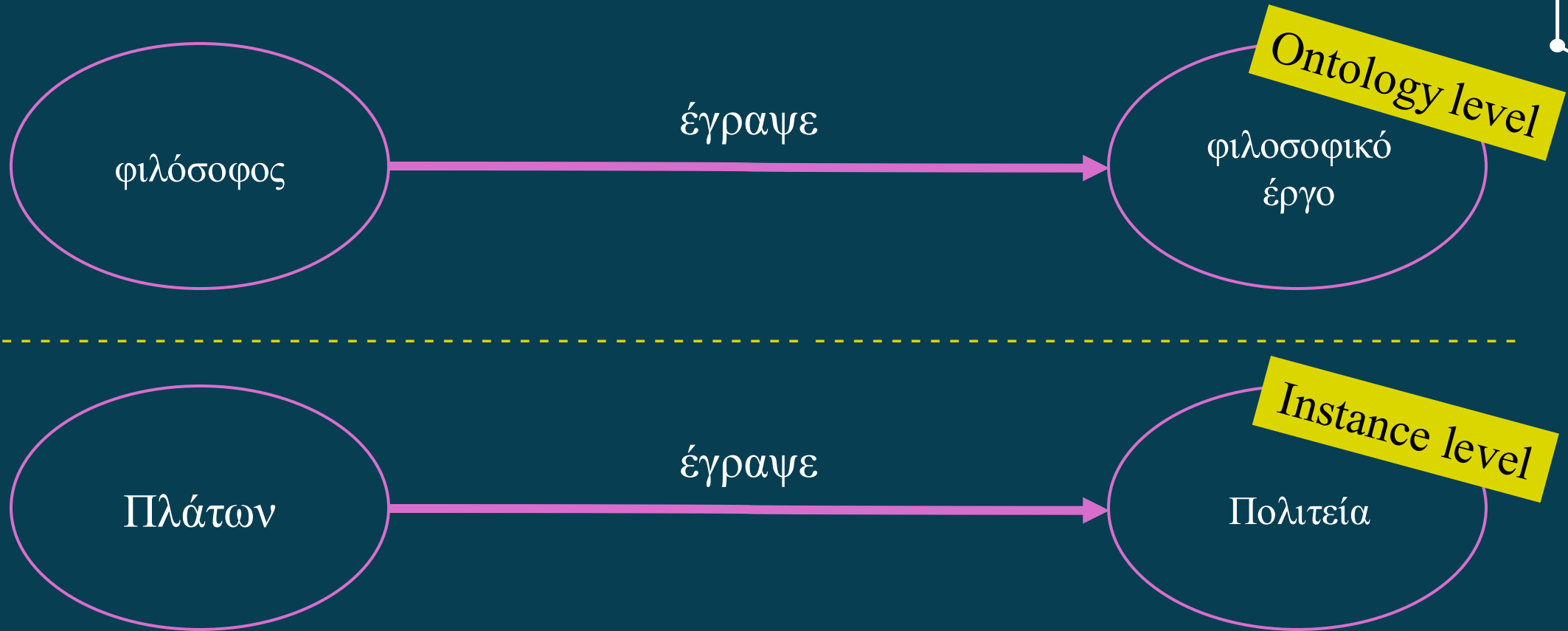
(“A Practical Guide to Building OWL Ontologies Using Protégé 4 and CO-ODE Tools Edition 1.3”, Matthew Horridge)



Οντολογία

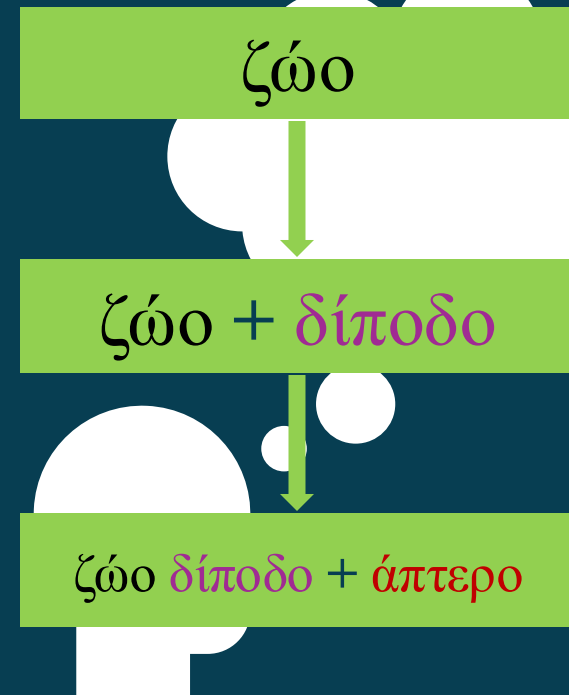


Οντολογία



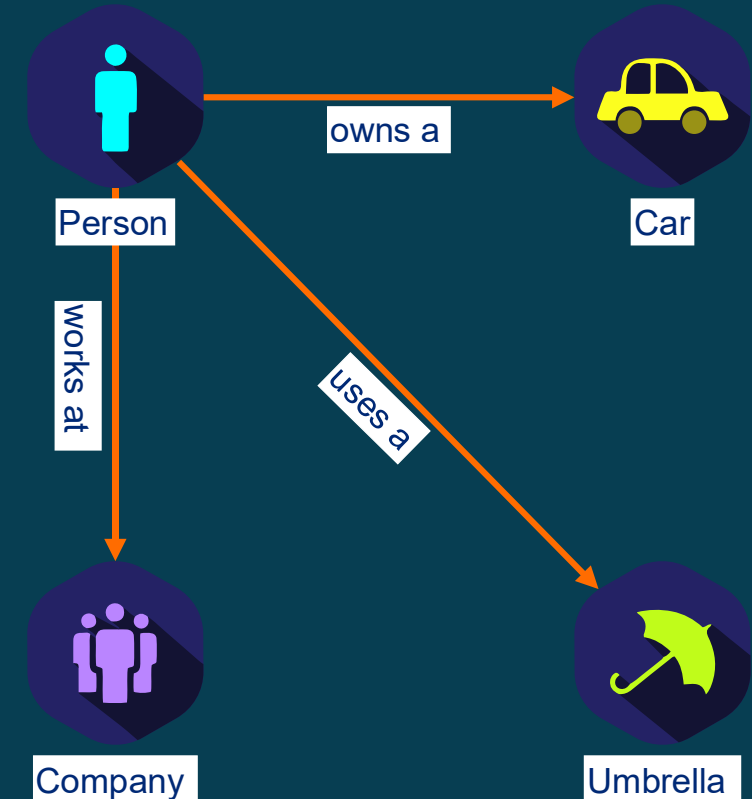
Οντολογία

- An abstract idea; a general notion. (Oxford Dictionary: Concept= έννοια)
- **Concepts** are mental representations, abstract objects or abilities that make up the fundamental building blocks of thoughts and beliefs. (Wikipedia)
- Unit of knowledge created by a unique combination of characteristics (ISO 1087-1).



Οντολογία + ορολογία

- “**Terminology** studies specialized language (‘terms’), which designate concepts within a domain.”
(ISO 1087:2019)
- “An **ontology** is not a terminology, and a **terminology** is not an ontology: they do not have the same goal. Nevertheless, ontology is today one of the most promising perspectives to Terminology (e.g. for IT applications).”
(Roche, 2005)



Visualizing an Ontology. yWorks. Retrieved June 27, 2024, from <https://www.yworks.com/use-case/visualizing-an-ontology>

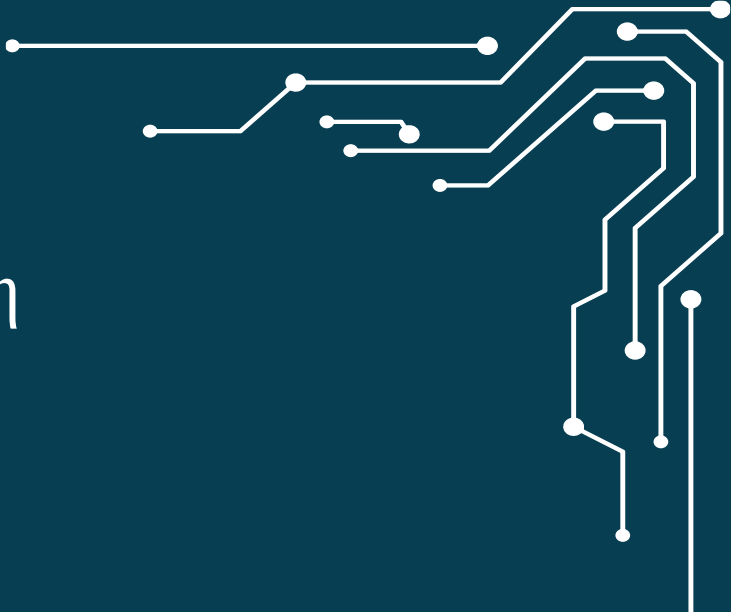
Οντοορολογία

“An **Ontoterminology** is a **terminology** whose conceptual system is a formal ontology. [...] Based on the fact that **linguistic** and **conceptual** dimensions do not match, Ontoterminology makes explicit the **double dimension of Terminology**. Ontoterminology preserves the **linguistic** diversity taking into account multilingualism and allows to standardize the **domain knowledge**.”
(Roche, 2012)



Οντοορολογία:

Εννοιολογική και γλωσσική διάσταση



timepiece



timepiece + portable



timepiece portable + wrist

“A **term** is a verbal designation of a **concept**” (ISO 1087)

“The definition of a **term** is a paraphrase of the **logical definition** of the **concept** denoted by the **term**.”
(C. Roche 02/08/2019).



Οντοορολογία:

Εννοιολογική και γλωσσική διάσταση



timepiece



timepiece + portable



timepiece portable + wrist

<Timepiece portable wrist>

“wrist watch”@en

Εννοιολογική και γλωσσική διάσταση & οντολογικό επίπεδο και επίπεδο στιγμιοτύπων

	Ontology level	Instance level
Conceptual dimension	<Timepiece portable wrist> → concept	rafail's-wrist-watch → object
Linguistic dimension	“wrist watch” → term	“TEDI” → proper name

Εννοιολογική και γλωσσική διάσταση & οντολογικό επίπεδο και επίπεδο στιγμιοτύπων



timepiece



timepiece + portable



timepiece portable + wrist

isA

<Timepiece portable wrist>

Ontology level

“wrist watch”@en

Instance level

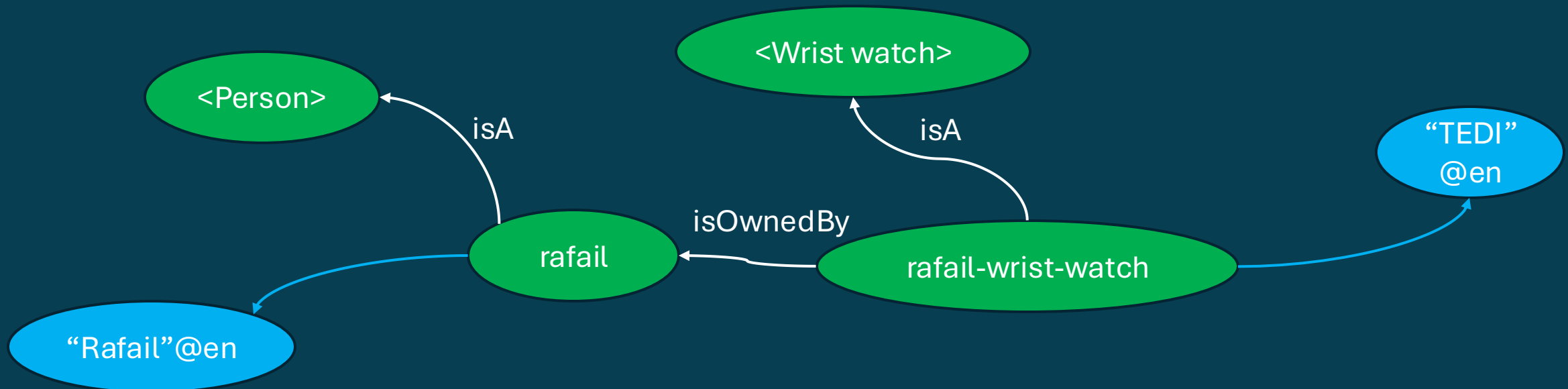
rafail's-wrist-watch

“TEDI”@en

Hands-on part:

Ας μοντελοποιήσουμε αυτή την πρόταση με το TEDI

Ο Ραφαήλ έχει ένα ρολόι χειρός που το ονομάζει TEDI.



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Ευχαριστώ για την προσοχή σας!

Ραφαήλ Γιανναδάκης
(TALOS-AI4SSH, Πανεπιστήμιο Κρήτης)
giannadakis.uni@gmail.com

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Ontoterminology bibliography and further material

Giannadakis, Rafail. *MOOC on TEDI*. Available at:

<http://ontologia.fr/Tedi/Document/Giannadakis-TEDI-MOOC-AI4SSH.mp4>.

Milio, Rachel; Giannadakis, Rafail; Lourentzaki, Antonia. “Creating ontoterminologies for antiquity: workflow, challenges and solutions.” *Proceedings of the 4th International Conference on “Multilingual Digital Terminology Today: Design, Representation Formats and Management Systems” (MDTT)*, 19–20 June 2025, Thessaloniki, Greece. Available at: <https://ceur-ws.org/Vol-3990/paper4.pdf>.

Papadopoulou, Maria; Giannadakis, Rafail. “Foundations of the Semantic Web: Querying and Modelling Ontoterminologies (SPARQL & TEDI).” Online Short Course for *Nanjing University of Aeronautics and Astronautics* graduate students, 9 & 11 July 2024. Available at: <https://www.youtube.com/watch?v=yQcrXjUBX3U>.

Roche, Christophe. “Le terme et le concept: fondements d’une ontoterminologie.” In *Terminologie & Ontologie: Théories et Applications (TOTh 2007)*, Annecy, 1 June 2007, pp. 1–22. Available at: http://ontologia.fr/Bibliographie/Ontoterminologie_TOTh_2007.pdf.

Roche, Christophe. *OntoTerminology Editor*. Presentation introducing TEDI and ontoterminology, June 2024. Available at: <https://ontoterminology.com/wp-content/uploads/2024/08/Tedi-Presentation-June-2024-Print.pdf>.

Roche, Christophe. “Ontoterminology: How to unify terminology and ontology into a single paradigm.” In *Proceedings of the Eighth International Conference on Language Resources and Evaluation (LREC 2012)*, Istanbul, 21–27 May 2012, pp. 2626–2630. Available at: http://ontologia.fr/Bibliographie/567_Paper_Header.pdf.

Roche, Christophe; Papadopoulou, Maria. “Mind the Gap: Ontology Authoring for Humanists.” In *Joint Ontology Workshops*, 2019. Available at: <https://api.semanticscholar.org/CorpusID:209430626>.

Roche, Christophe; Papadopoulou, Maria. “Rencontre entre une philologue et un terminologue au pays des ontologies.” *Revue Ouverte d’Intelligence Artificielle*, 1(1), 2020, pp. 43–70. Available at: http://roia.centre-mersenne.org/item?id=ROIA_2020_1_1_43_0.

Roche, Christophe; Papadopoulou, Maria. “Terminology Evaluation: The Contribution of Formal Approaches.” Presented at the *3rd International Conference on “Multilingual Digital Terminology Today: Design, Representation Formats and Management Systems” (MDTT)*, 27–28 June 2024, Granada, Spain. Available at: <https://ceur-ws.org/Vol-3703/paper3.pdf>.

TEDI [website]. Available at: <https://ontoterminology.com/tedi>.