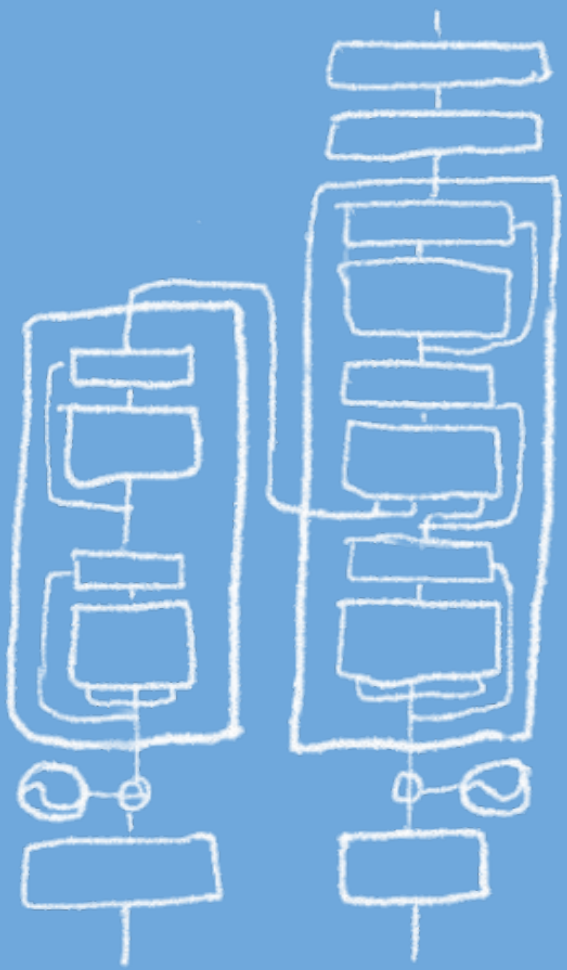


Annotating Compositionality Scores for Irish Noun Compounds is Hard Work

Principle of Compositionality

- The **meaning** of a **complex expression** is determined by the **meanings** of its **constituent expressions** and the **rules** used to **combine** them
- BUT idiomatic language presents a challenge to this principle (Goldberg 2015)



- Do Large Language Models struggle to capture this kind of idiomaticity?
 - Experiments such as Cordeiro et al. (2019) and Garcia et al. (2021) explore compositionality in noun compounds (NCs) for English, French, and Portuguese
- No such dataset for Irish noun compounds!

The Data

Dúchas (Baillúchán na Scol, Ábhar Co. na Gaillimhe)

- Folkloric and storytelling materials
- Dialectal Irish
 - Non-standard orthography



The Universal Dependencies Irish Dependency Treebank v2.12

- Mixed domains
 - Fiction, government, legal, news, web
- Gold-standard dependency parsed trees
 - Morphological features and part-of-speech information



Annotated for

- Compositionality [0-5]
- Annotator familiarity [1-3]
- Domain specificity [1-3]
- Confidence score [1-3]
- Named entities [y/n]

Pilot Tasks



Pilot Task 1

- 3 annotators
 - 2 trained, 1 untrained
- Compositionality scores
- Confidence scores
- 20 sentences (56 NCs)

Pilot Task 2

- 3 annotators
- Compositionality
- Domain specificity
- Named entities
- Confidence
- 30 sentences (62 NCs)

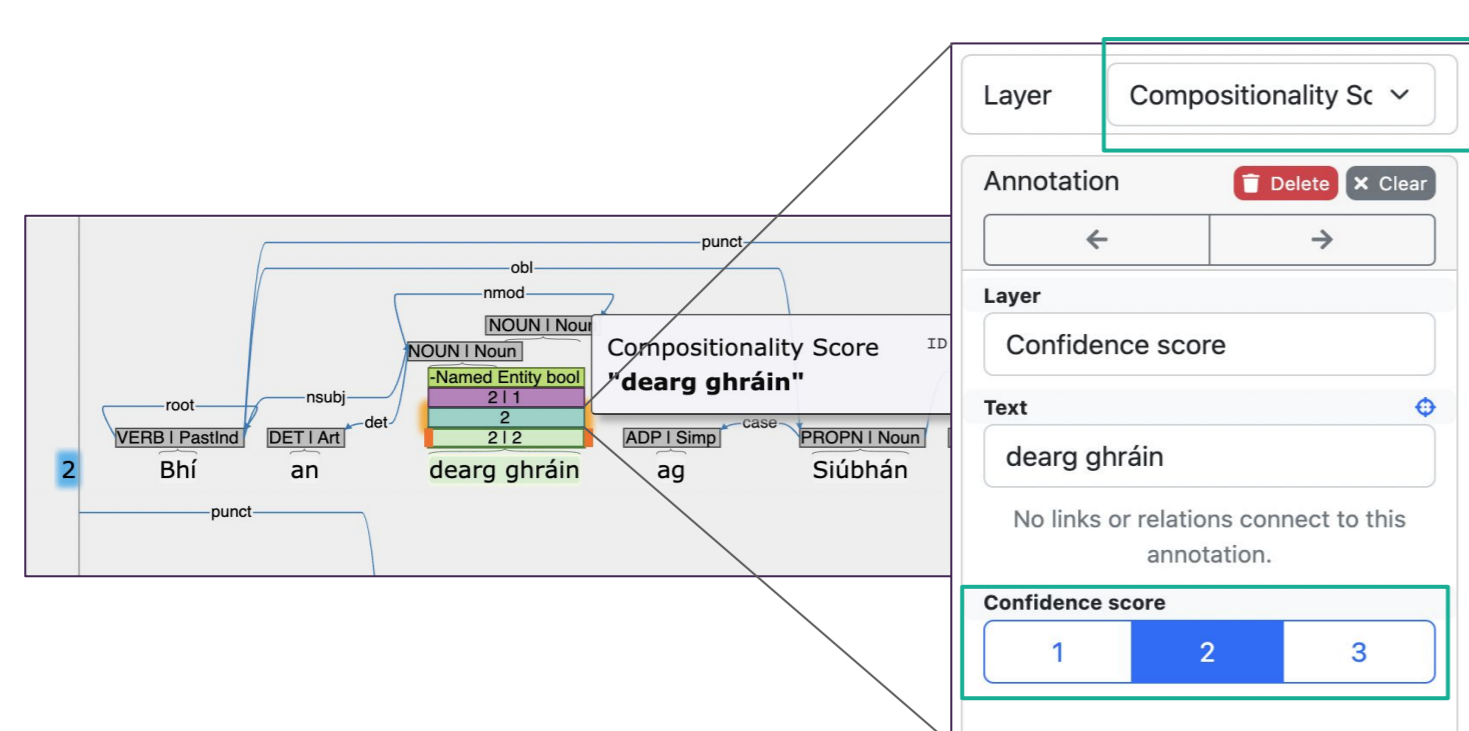
Pilot Task 3

- 3 annotators
 - +2 new annotators to be added
- Compositionality (6- and 5-point)
- Domain specificity
- Familiarity
- Famed entity
- Confidence
- 24 sentences (40 NCs)

	1 v 2	1 v 3	2 v 3
Pilot 1	0.45	0.64	0.5
Pilot 2	0.54	0.31	0.3
Pilot 3 (6 point)	0.54	0.42	0.51
Pilot 3 (5 point)	0.41	0.42	0.55
All 3 pilots (6 point)	0.54	0.49	0.49

Cohen's Weighted Kappa shows inter annotator agreement scores for annotators 1, 2 and 3

Annotation Software



Annotation carried out on the INCEpTION Platform

Findings

- Difficult cases reveal **challenging aspects** of compositionality
 - Understanding compositionality as an aspect of **language experience**
 - Defining the line between terminology and noun compounds
- Collection of Irish NCs reveal patterns of **idiomaticity** in Irish
 - General domains** such as weather, nature, mythology demonstrate more low-compositional NCs



References

- Goldberg, A. E. 2015. Compositionality. In *The Routledge Handbook of Semantics* (pp. 419-433). Taylor and Francis Inc.
- Cordeiro, S., Villavicencio, A., Idiart, M., and Ramisch, C., 2019. Unsupervised compositionality prediction of nominal compounds. *Computational Linguistics*
- García, M., Kramer Vieira, T., Scarton, C., Idiart, M., and Villavicencio, A., 2021. Assessing the representations of idiomaticity in vector models with a noun compound dataset labeled at type and token levels. In *Proceedings of the 59th Annual Meeting of the Association for Computational Linguistics and the 11th International Joint Conference on Natural Language Processing*

Pilot Task Statistics	Dúchas	Trebank
Number of NCs	28	77
Average NCs per sentence	1.25	2.33
Average compositionality score	3.25	3.5
Average domain specificity	1.68	2.05
Average confidence score	1.75	2.1

