Exploiting Definitions for Frame Identification

Tianyu Jiang and Ellen Riloff
University of Utah
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FrameNet - Frame Example

Cooking_creation

Definition

This frame describes food and meal preparation...

Frame Elements

Cook, Produced food, Container, Ingredients, ...

Lexical Units (LU)

Bake, cook, fry, grill, ...

Frame-frame Relations

Inherits from:
Intentionally_create
...

Frame Semantic Parsing

01

Target identification

Identify frame-evoking predicates

02

Frame identification

Identify the evoked frame

03

Argument identification

Identify arguments of a frame and label them with semantic roles

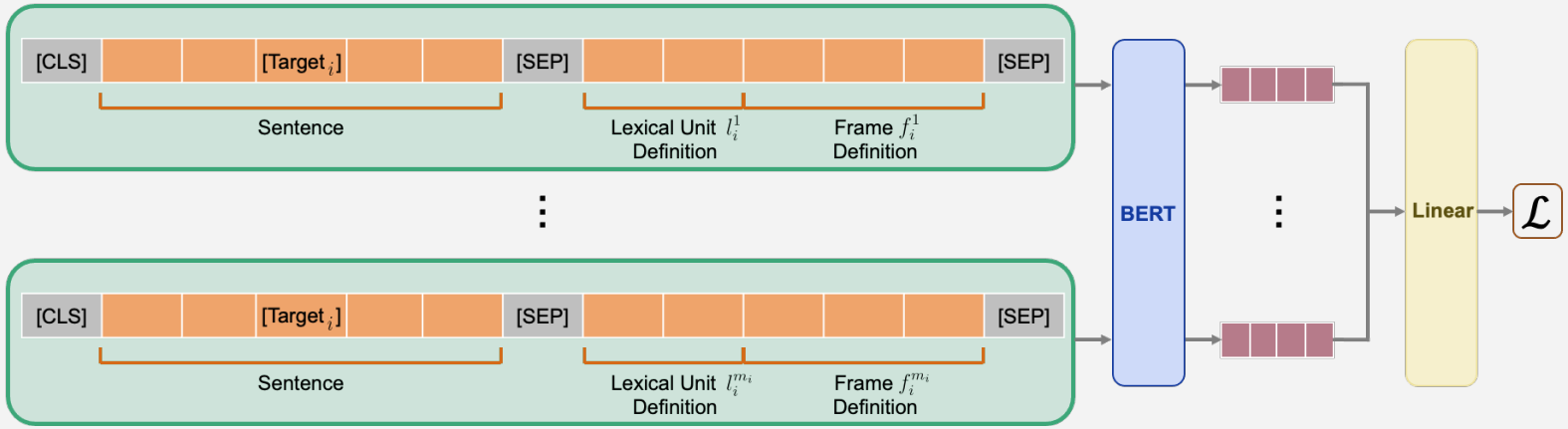
Frame Identification Task

> The pandemic has *sparked* a lot of problems for the economy.

Lexical Unit	spark.v
Definition	provide the stimulus for
Associated Frame	Cause_to_start
Frame Definition	A cause, animate or inanimate, causes a process, the effect, to begin.

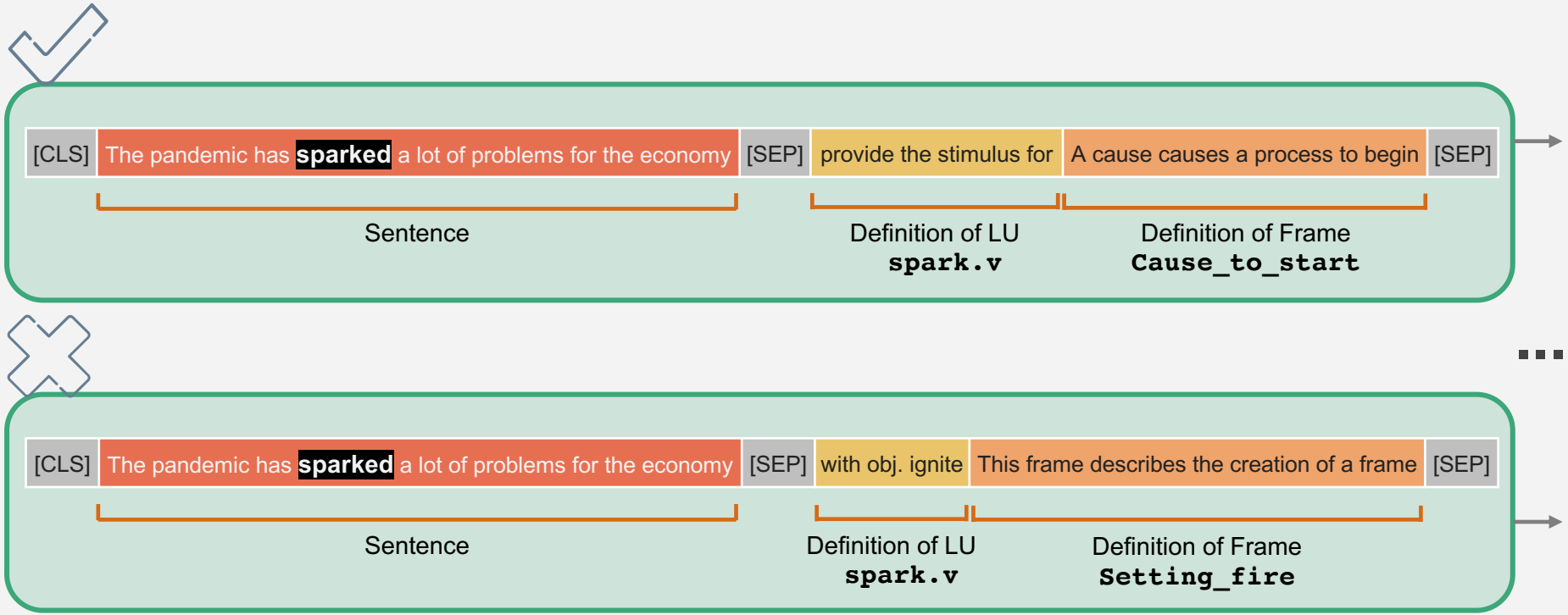
Lexical Unit	spark.v
Definition	with obj. ignite
Associated Frame	Setting_fire
Frame Definition	This frame describes the creation of a flame by a kindler or non-sentient cause...

Our Model - FIDO



Overview of the FIDO architecture. Each green block represents a different candidate pair (lexical unit, frame) for the same Target .

Our Model - A Real Example



Dataset

FrameNet 1.5 Same data split as Das et al. (2014)

FrameNet 1.7 Same data split as Swayamdipta et al. (2017)

YAGS YAGS (Hartmann et al., 2017) is a FrameNet-annotated test set based on question answering data from Yahoo! Answers[1]

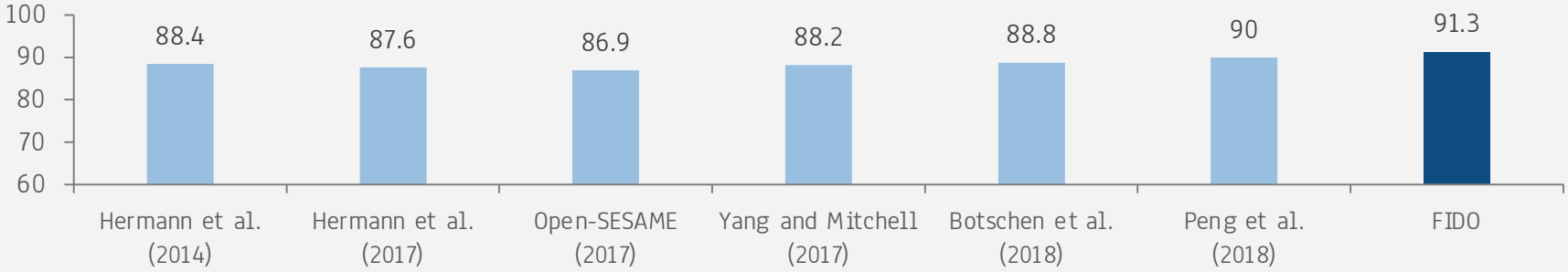
	FN 1.5	FN 1.7	YAGS
Train	15,017	19,391	--
Dev	4,463	2,272	1,000
Test	4,457	6,714	2,093

Dataset Sizes

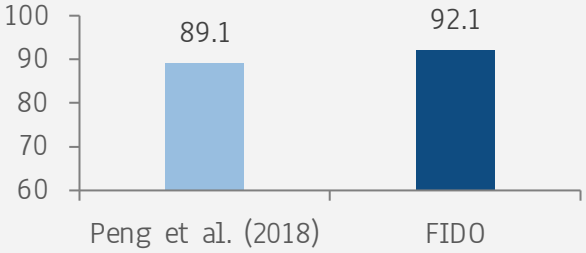
[1]https://webscope.sandbox.yahoo.com/

Experimental Results

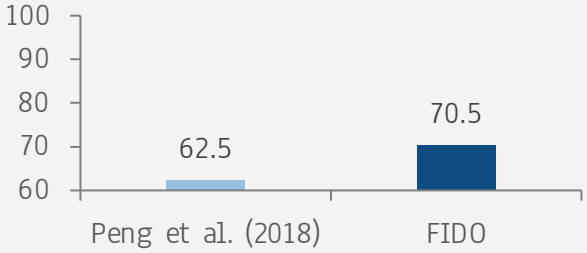
FN 1.5



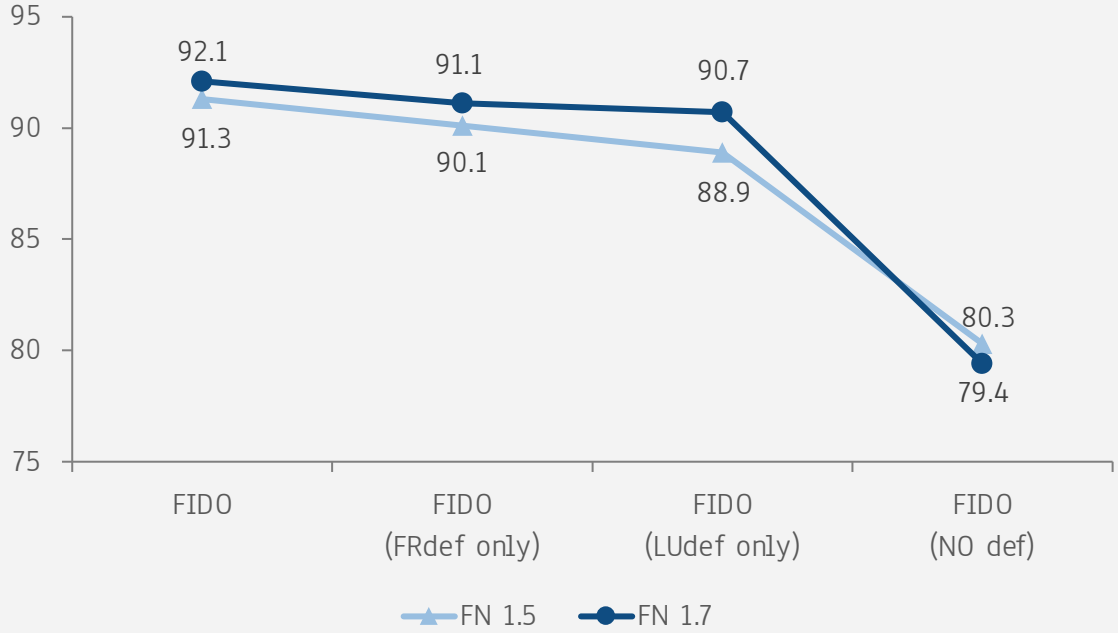
FN 1.7



YAGS



Analysis - Ablation Study



Conclusion

- We tackled the frame identification problem by assessing the **semantic coherence** between the meaning of a target word in a sentence, and a candidate frame.
- Specifically, we exploited the **frame and lexical unit definitions** provided by FrameNet.
- Our experiments show that a BERT based model achieves better performance than previous systems on two versions of FrameNet data and the YAGS dataset.
- Our code will be available at https://github.com/tyjiangU/fido.

THANKS!

Reference

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