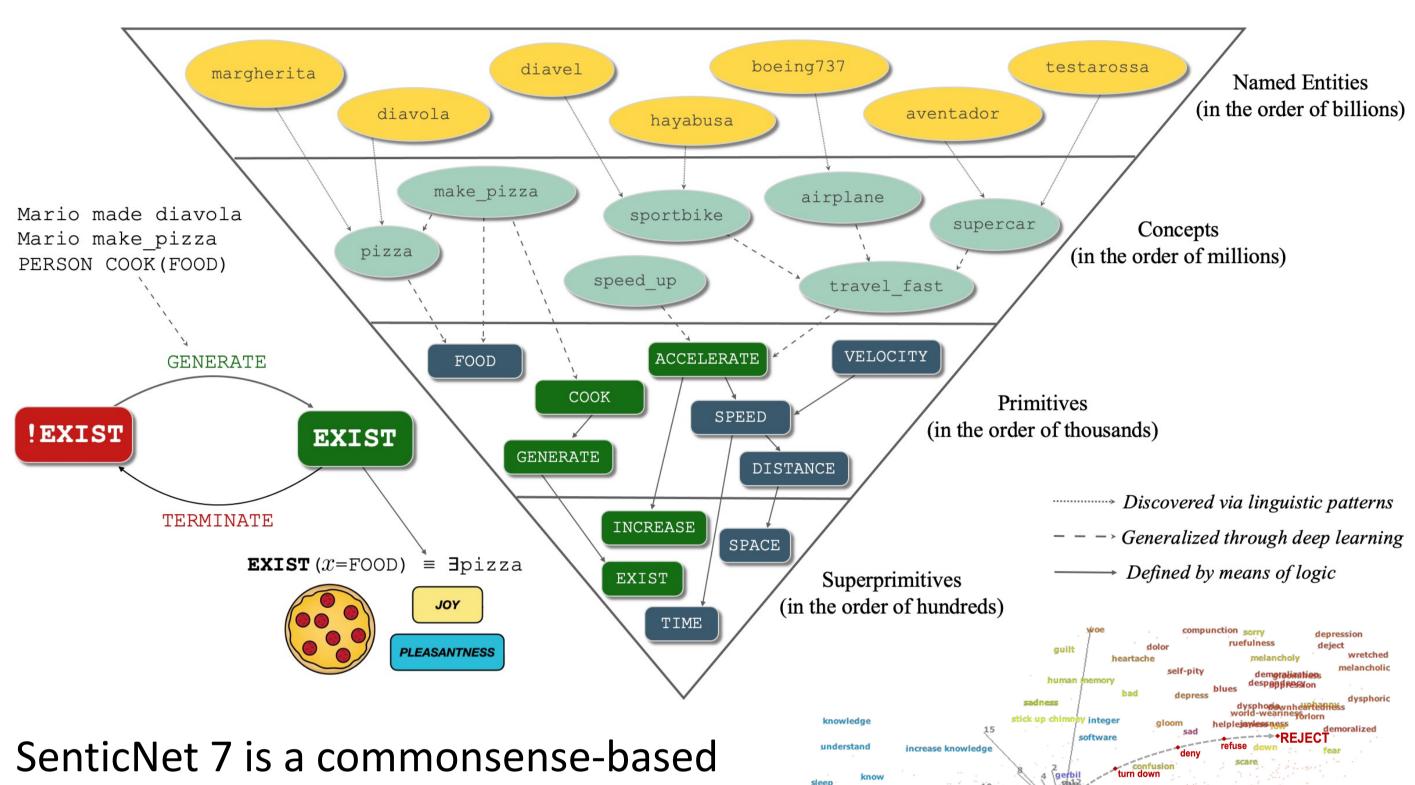
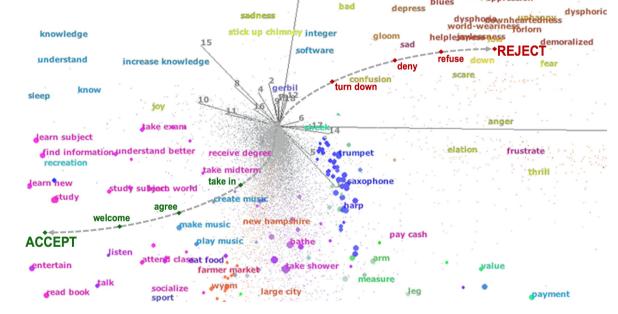
SenticNet 7

A Commonsense-based Neurosymbolic Al Framework for Explainable Sentiment Analysis

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SenticNet 7 is a commonsense-based neurosymbolic framework that aims to overcome issues like dependency, reproducibility, trustworthiness, interpretability, and explainability



Level-0 Primitives (Superprimitives)

INCREASE add, soar, escalate, mount_up, ...

DECREASE reduce, curb, lessen, tone_down, ...

GENERATE create, produce, make, build, construct, ...

TERMINATE stop, halt, cease, end, discontinue, abort, quit, ...

DECREASE(x) := $x \rightarrow x-$ GENERATE(x) := $\exists x \rightarrow \exists x$ TERMINATE(x) := $\exists x \rightarrow \exists x$ INSERT(x,y) := $x! \subset y \rightarrow x \subset y$ REMOVE(x,y) := $x \subset y \rightarrow x! \subset y$ JOIN(x,y) := $x \cap y = \emptyset \rightarrow x \cap y! = \emptyset$ DISJOIN(x,y) := $x \cap y! = \emptyset \rightarrow x \cap y = \emptyset$

 $INCREASE(x) := x \rightarrow x++$

Level-1 Primitives

GROW INCREASE(SIZE) expand, enlarge, multiply, ... **SHRINK DECREASE**(SIZE) diminish, downsize, downscale, ... INCREASE(SPEED) **ACCELERATE** speed_up, spur, hasten, dash, sprint, ... **DECELERATE DECREASE**(SPEED) slow_down, hit_the_breaks, delay, stall, ... **ACTIVATE GENERATE(PROCESS)** stimulate, mobilize, trigger, start, turn_on, ... **DEACTIVATE TERMINATE**(PROCESS) disable, turn_off, switch_off, shut_down, unplug, ...

Level-2 Primitives

BULK UP GROW(MUSCLE)

SHORTEN SHRINK(LENGTH)

REVITALIZE ACCELERATE(HEALING)

MURDER DEACTIVATE(LIFE)

INCREASE(MUSCLE.SIZE)

DECREASE(LENGTH.SIZE)

INCREASE(HEALING.SPEED)

TERMINATE(LIFE.PROCESS)

beef up, build up, puff up, ...
abridge, compress, trim, prune, ...
rejuvenate, revive, energize, recover...
kill, execute, assassinate, homicide, slay...

Subsymbolic techniques are employed to build trustworthy symbolic representations that convert natural language to a sort of protolanguage and, hence, extract polarity from text in an explainable manner







