NLI annotation task guidelines 2022-11-15 15....

We selected a total of 20 example sentences each for Entailment, Contradiction and Neutral labeled examples from SICK dataset (https://huggingface.co/datasets/sick).

About this sentences with modifiers

For each of these 20 examples, as per guidance from Mihai, I created script to add modifiers:

1. Noun phrases modifiers: ***'every', 'some', 'at least','not every','exactly one', 'all but one','everyone of', 'no' and adjectives: "green", "happy", "sad", "good", "bad"***
2. Verb phrase modifiers: ***"not",*** adverbs: ***"abnormally", "elegantly", "always", "never",***
3. Aside from the modifiers applied to sentences (based on some simple rules), we also follow a small variation sentences which is as follows:
   a. Modified Premise, Original Hypothesis
   b. Original Premise, Modified Hypothesis
   c. Modified Premise, Modified Hypothesis
4. Excel sheet for annotations (for Inter annotator agreements): https://arizona.box.com/s/w2fxwg6i6k9evuw9tradaf6kk8v0mgod
5. We auto-modified based on simple rules. For full details of this task, please refer NatLog Group meeting notes here: https://docs.google.com/document/d/1Nn1l5VZbzeRhaF4wkx3sS_eP0O9Q36_NfUEJnr35HzI/edit?usp=sharing
6. Colab notebook for generating the sentences with modifiers: Colab Notebook for this task: https://github.com/sushmaakoju/natural-logic/blob/main/notebooks/sentence_modifiers_annotations.ipynb

Instructions:

   a. Download this modified sentences small dataset from here https://arizona.box.com/s/ltkretsk2mt6ah0boteqwvbaxzfll4ne
   b. You will need to download this excel sheet and label it and rename by adding your name to file name.
   c. For each premise, hypothesis pair of sentences, we need to select from following labels under **Modified label column** in excel sheet: **FE, RE, Negation (Contradiction), Cover, Alternation, Neutral and Equivalence -** as per 7 Entailment Relations described in Bill MacCartney's Dissertation: https://www-nlp.stanford.edu/~wcmac/papers/nli-diss.pdf
   d. Original SICK dataset label only has Entailment, Contradiction and Neutral labels which are under the column which is retained under **Original label column** in excel sheet.

e. Once you completed annotating the modified sentences, please email me your annotations file.

Guidelines for Choosing the label as per meeting from Nov 17th 2022:

As per whiteboard guidelines:

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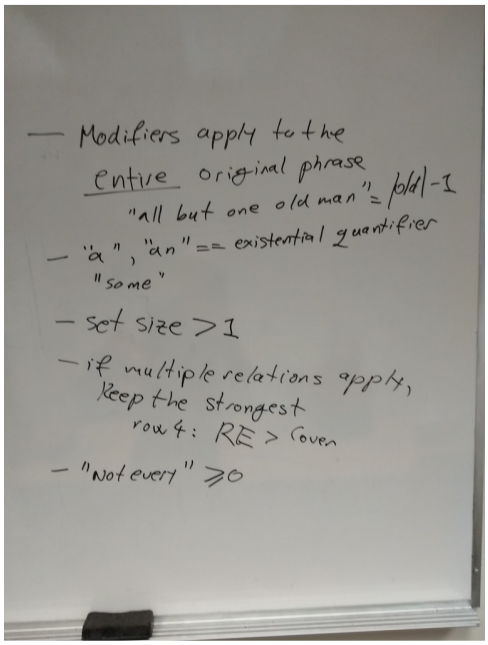

1. Modifiers apply to the “entire” original phrase. For example, in the modified phrase “all but one old man”, the modifier “all but one” applies to the original phrase “old men”. Thus, the number of people considered is: |old| - 1.
2. “a”, “an”, and “some” == existential quantifier
3. When we are considering sets of concepts, we can assume that set size > 0. For example, when we say “all men”, we should assume more than 0 man.
4. If multiple relations apply, keep the strongest
   a. refer row 4, which both RE and Cover apply. But because RE > Cover, we should choose RE.
5. For the “not every” modifier, e.g., “not every old man sits…”, we have to interpret it mathematically. That is, the number of elements left is >= 0. In the previous example this means that you can have 0 people left sitting.

Guidelines for Annotations:

a. We refer Chapters 5 and 6 as main reference points for selecting labels.

b. Material reference for selecting label: Bill MacCartney's NLI Dissertation's Chapter 5 (pg no. 77-99) and Chapter 6 (pg no. 100-133) (are “true” page numbers): https://www-nlp.stanford.edu/~wcmac/papers/nli-diss.pdf
c. The Entailment Relations generally categorized as follows:

symbol[10]	name	example	set theoretic definition[11]	in $\mathfrak{R}$
$x \equiv y$	equivalence	*couch* $\equiv$ *sofa*	$x = y$	R_{1001}
$x \sqsubset y$	forward entailment	*crow* $\sqsubset$ *bird*	$x \subset y$	R_{1101}
$x \sqsupset y$	reverse entailment	*Asian* $\sqsupset$ *Thai*	$x \supset y$	R_{1011}
$x \wedge y$	negation	*able* $\wedge$ *unable*	$x \cap y = \emptyset \wedge x \cup y = U$	R_{0110}
$x \mid y$	alternation	*cat* $\mid$ *dog*	$x \cap y = \emptyset \wedge x \cup y \neq U$	R_{1110}
$x \smile y$	cover	*animal* $\smile$ *non-ape*	$x \cap y \neq \emptyset \wedge x \cup y = U$	R_{0111}
$x \# y$	independence	*hungry* # *hippo*	(all other cases)	R_{1111}

d.
e. Referring Chapters 5 & 6, please label each of premise and hypothesis pair from among any of following labels: FE, RE, Negation (Contradiction), Cover, Alternation, Neutral and Equivalence.
f. Most of the labels can be labelled by common sense.
g. We can think of a “if this, then that” kind of expansion of the sentence.
h. Refer the “set theoretic definition” column in above table for deriving the entailment relation.
i. Chapter 6 has more examples towards Generalized quantifiers and how such projectivity signature (addition of quantifier) changes the resulting Entailment Relation.

Examples (that follow from the Entailment Relations table):

a. premise: He is driving a sports car, hypothesis: he is driving a car - label: Forward Entailment
b. premise: He is driving a car, hypothesis: he is driving a sports car - label: Reverse Entailment
c. premise: He is driving a sports car, hypothesis: he is not driving a Tesla - label: label: Cover
d. premise: He is driving a sports car, hypothesis: he is driving a pickup truck - label: Alternation
e. premise: He is driving a sports car, hypothesis: he is not driving a sports car - label: Negation
f. premise: He is driving a car, hypothesis: he is driving a automobile - label: Equivalence

I did not eat any (**fruit or raspberries)**_____ for breakfast - NLI_XY
I did not eat (**any or some or every or atleast one**) _____ fruit/s for breakfast - this annotation task