Evaluating the Quality of Knowledge Relations & Paths

Imagine you are a robot (or an alien) that speaks our language, but does not have access to commonsense knowledge, so you don't know things such as that birds can fly, that cars are used for driving, or that dogs are animals. This information usually stays implicit in everyday communication, but is very important to make sense of things we read or hear.
You are now given two sentences, and in order to understand why they belong together, what their connection is, you are provided with additional information. This information represents commonsense knowledge which should help you to understand the connection between the sentences. The information is provided in the form of relation triples. Below we give two examples:

sentence 1: The car of my brother is brand new.
sentence 2: It was a very expensive vehicle.

Additional information: Car --> *IsA* → vehicle (can easily be translated to natural language such as: A car is a vehicle. A list of the relations used and an overview of how relations can be translated into natural language appears at the end of this file.)

Here, with the help of the given additional information, a link between *car* and *a vehicle* could be established, which helps to understand why these two sentences belong together. Sometimes, the connection can also be revealed by a longer path, as in the following example:

sentence 1: People produce too much waste in New York.
sentence 2: Therefore, we established a new program for environmental protection.

Additional information: waste *ReceivesAction* recycle → *PartOf* environmental protection
(can easily be translated to natural language such as: waste is recycled, which is part of the environmental protection.)

Here a link between *waste* and *environmental protection* could be established through the given path, which again helps to understand why these two sentences belong together.

You are now given a sentence pair and two concepts (words or phrases), where the first concept comes from the first sentence and the second concept from the second sentence. You are also given three different options of additional information (relations or relation paths) which are supposed to help you understanding the connections between those concepts (A, B, and C)
Your task is now to decide for each of the options if the given additional information helps you to understand better the connection between the two sentences. Please answer the following four questions for each sentence pair in the corresponding sheet:

1) Is the relation/path a meaningful explanation for the connection between the two sentences? Does it help you to understand why the two sentences belong together?
   1: yes, the relation/path is very relevant and very helpful for explaining the connection

2: yes, the relation/path is relevant and helpful for explaining the connection
3: The connection makes sense but is not very specific/too vague
4: no, the relation/path is not relevant or helpful for understanding the connection
5: no, the relation/path is misleading or wrong

2) Does the relation/path represent implicit information not expressed explicitly in the sentences? (y/n/N.A.)
   - choose N.A. if the relation/path includes information not expressed explicitly in the sentences, but is not helpful to understand the connection between the two sentences

3) Which path/relation explains the connection best/is most helpful and expressive for understanding the connection between the sentences?

4) Only for the lines in red at the end of the file: Compare the longer path (column A) to the shorter relation (column B). Does the longer path include...
   a) misleading intermediate nodes? (y/n)
   b) unrelated/unnecessary/uninformative intermediate nodes? (y/n)
   c) nodes which are important for explaining the connection, that are missing in the short relation?

Relations and how they can be expressed in natural language:

Relation	Sentence pattern	Relation	Sentence pattern
IsA	*NP* is a kind of *NP*.	LocatedNear	You are likely to find *NP* near *NP*.
UsedFor	*NP* is used for *VP*.	DefinedAs	*NP* is defined as *NP*.
HasA	*NP* has *NP*.	SymbolOf	*NP* represents *NP*.
CapableOf	*NP* can *VP*.	ReceivesAction	*NP* can be *VP*.
Desires	*NP* wants to *VP*.	HasPrerequisite	*NP*|*VP* requires *NP*|*VP*.
CreatedBy	You make *NP* by *VP*.	MotivatedByGoal	You would *VP* because you want *VP*.
PartOf	*NP* is part of *NP*.	CausesDesire	*NP* would make you want to *VP*.
Causes	The effect of *VP* is *NP*|*VP*.	MadeOf	*NP* is made of *NP*.
HasFirstSubevent	The first thing you do when you *VP* is *NP*|*VP*.	HasSubevent	One of the things you do when you *VP* is *NP*|*VP*.
AtLocation	Somewhere *NP* can be is *NP*.	HasLastSubevent	The last thing you do when you *VP* is *NP*|*VP*.
HasProperty	*NP* is *AP*.		

More detailed information can be found here:
https://github.com/commonsense/conceptnet5/wiki/Relations