

Relation 4: Origin-Entity

Preamble

(Moldovan et al., 2004) have a relation "SOURCE/FROM" defined as "a place where an entity comes from" (e.g. "olive oil" or "I got it from China"). Levi (1979) has FROM as one of her relations; it refers to a source and acts as an ablative, e.g. "olive oil", "test-tube baby", "apple seed", "rural visitors". Warren (1978) has an Origin-OBJ class (e.g. "seafood"), which is a sub-class of her top-level class "Location".

Definition

Origin-Entity(X, Y) is true for a sentence S that mentions entities X and Y if and only if:

- (1) X and Y appear close in the syntactic structure of S (we do not assign the relation to entities from separate clauses in a composite sentence);
- (2) according to common sense, the situation described in S entails that X is the origin of Y. Here X is the origin, and Y is the entity coming/derived from that origin.
- (3) The origin can be spatial/geographical or material.

Definition – restrictions

- (a) The origin should NOT be actively involved in the process of bringing the entity into existence (e.g. "light bulb", "silk worm").
- (b) The entity should NOT be part of the origin, e.g. "apple seed", when the "seed" is separated from the "apple".
- (c) In the case of material origin X, X should undergo considerable processing in order to produce the entity Y (e.g. "rye whiskey", "tobacco ash", "coriander curry", "peanut butter").
- (d) A chemical element (e.g. aluminum) will not be considered origin, because it does not change its nature when used to produce objects.
- (e) A person/company can be identified as origins if they were not involved in the production of the entity (e.g. "cable news", "information from experts").
- (f) Objects emitting radiation/heat/light... are regarded as producers of such emissions, not just origins.
- (g) An entity can have several origins, and each of them separately will count as an origin -- in a manner similar to multiple inheritance in taxonomies.
- (h) We consider that news and information is conveyed, rather than produced, and its source will be the origin.

Definition – notes

- (i) The relation can apply to both physical and abstract origin.

Positive Examples

"Under state law, minors are not permitted to have <e1>grain</e1> <e2>alcohol</e2>, even if a parent provides it to their children."

WordNet(e1) = "n5", WordNet(e2) = "n2", Origin-Entity(e1, e2) = "true"

Comment: This is a prototypical example of a material Origin-Entity. Restriction (c) applies.

"Upon first bite Trahyn found that the cake was made with <e1>bacon</e1> <e2>grease</e2>."

WordNet(e1) = "n3", WordNet(e2) = "n1", Origin-Entity(e1, e2) = "true"

Comment: This is a prototypical example of a material Origin-Entity. Condition (3) is fulfilled.

"I get <e2>letters</e2> from <e1>foreign countries</e1> asking me to do shows there."

WordNet(e1) = "n2", WordNet(e2) = "n5", Origin-Entity(e1, e2) = "true"

Comment: This is a prototypical example of a spatial/geographical Origin-Entity. Condition (3) is fulfilled.

"Scientists have also linked the recent UK epidemic to a <e1>desert</e1> <e2>storm</e2> from the Sahara."

WordNet(e1) = "n1", WordNet(e2) = "n2", Origin-Entity(e1, e2) = "true"

Comment: Here we have two Origin-Entity relations, both fulfilling condition (3): Origin-Entity(desert, storm) has a material origin, while Origin-Entity(desert storm, Sahara) has a spatial/geographical origin.

"The Discovery Channel follows the construction of a modern aircraft carrier, presents <e2>highlights</e2> from the <e1>history</e1> of carriers, interviews crew-members, and provides a clickable cross-sectional map of a carrier."

WordNet(e1) = "n3", WordNet(e2) = "n1", Origin-Entity(e1, e2) = "true"

Comment: The highlights "originate" from history of carriers in a metaphorical sense and we allow this.

"One thing SETI has agreed on is that if a <e2>message</e2> from <e1>outer space</e1> is discovered, once it is confirmed by scientists from outside of the organization to authenticate the source, the message will be made known to the public right away."

WordNet(e1) = "n1", WordNet(e2) = "n2", Origin-Entity(e1, e2) = "true"

Comment: This is a prototypical example of a spatial/geographical Origin-Entity relation.

"In the National Library you can find listing of more than 10000 <e2>newspapers</e2> from around the <e1>world</e1>, searchable by country and year."

WordNet(e1) = "n1", WordNet(e2) = "n2", Origin-Entity(e1, e2) = "true"

Comment: This is a prototypical example of a spatial/geographical Origin-Entity relation.

"Found in about 75% of American homes, <e1>peanut</e1> <e2>butter</e2> is considered by many to be a staple like bread and milk."

WordNet(e1) = "n2", WordNet(e2) = "n2", Origin-Entity(e1, e2) = "true"

Comment: This is a prototypical example of a material Origin-Entity relation.

Near-miss negative examples

"The temple claims to have the only <e2>orange</e2> <e1>tree</e1> in Paro, and the picking of fruit from the tree is strictly prohibited."

WordNet(e1) = "n2", WordNet(e2) = "n2", Origin-Entity(e1, e2) = "false"

Comment: This should be Product-Producer relation (tree, orange). The sentence violates definition restriction (a). Here the tree is actively involved in bringing the oranges into existence, and does not serve as a raw material.

"Others note that <e1>apple</e1> <e2>seeds</e2> found in Anatolia were carbon dated 6500 BCE."
WordNet(e1) = "n2", WordNet(e2) = "n2", Origin-Entity(e1, e2) = "false"

Comment: The sentence violates definition restriction (b). This could be Whole-Part relation (apple, seeds), according to the constraints proposed by Winston, Chaffin and Hermann in a classification into six specialized types of the Part-Whole relation -- see Relation 6: Part-Whole. i.e. "The seeds used to be part of apples". (The context here is vague. It is not clear if the seeds were found inside the apple or separated from it.)

"Upon prior <e2>statement</e2> from the <e1>President</e1> in case of reasons of emergency, national security, or public interest, and solely while such reasons remains, the State may subject the patent to a compulsory license at any time and, in such case, the National Bureau of Industrial Property may grant the requested licenses, regardless of the patent holder's right to compensation..."
WordNet(e1) = "n4", WordNet(e2) = "n4", Origin-Entity(e1, e2) = "false"

Comment: The sentence violates definition restriction (a) where the origin should NOT be actively involved in the process of bringing the entity into existence. In this case we should have Agent (President, statement), i.e. "the President is the one who makes the statement".

"The return to Earth early Monday of the Shenzhou VI with two astronauts on board marked the end of stage one in China's <e1>space</e1> <e2>odyssey</e2>."
WordNet(e1) = "n4", WordNet(e2) = "n2", Origin-Entity(e1, e2) = "false"

Comment: Here the sentence violates condition (2) because the space is not the origin, but the destination or the location of the odyssey.