Relation 7: Content-Container

Definition

Content-Container(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 (so for example we do not assign the relation to entities from separate clauses in a composite clause);

(2) according to common sense, the situation described in S entails the fact that X is or was (usually temporarily) stored or carried inside Y;

(3) common sense dictates that X may be removed from Y without significantly changing the nature of Y; more precisely, X is not affixed to Y, nor is it usually considered to be a component of Y.

Definition – restrictions

(a) The container must be clearly delineated in space (so for example atmosphere, sea or cloud are locations rather than containers).

(b) There is strong preference against treating legal entities (people and institutions) as content.

(c) There is weak preference against treating buildings and vehicles as containers.

Definition – notes

(i) The relation applies equally well to physical content and to abstract content. It the latter case metonymy can usually be found in the sentence.

(ii) The situation often suggests either Location-Located or Part-Whole. The annotators will assign Content-Container if it is a feasible interpretation, even if it is not necessarily the preferred one.

Positive examples

"The <e1>apples</e1> are in the <e2>basket</e2>."
WordNet(e1) = "n1", WordNet(e2) = "n1", Content-Container(e1, e2) = "true"

Comment: This is a prototypical example of Content-Container.

"The <e1>plane</e1> contained precious <e2>cargo</e2>."
WordNet(e1) = "n1", WordNet(e2) = "n1", Content-Container(e2, e1) = "true"

Comment: Again, this is not a prototypical example of Content-Container. However, it is still true that

the plane contains the cargo.

"The <e1>theory</e1> contained many <e2>flaws</e2>."
WordNet(e1) = "n1", WordNet(e2) = "n1", Content-Container(e2, e1) = "true"

Comment: The flaws are "inside" the theory only in an abstract sense. However, we will allow this abstract usage. Therefore condition (2) is fulfilled. It seems reasonable to assume that the flaws can be removed from the theory, although it is possible that they cannot be removed. Therefore we will suppose that condition (3) is fulfilled.

"I emptied the <e1>wine</e1> <e2>bottle</e2> into my glass and toasted my friends."
WordNet(e1) = "n1", WordNet(e2) = "n1", Content-Container(e1, e2) = "true"

Comment: This satisfies (2), because the sentence entails that the bottle contained wine. It also satisfies (3), because the empty bottle is still a bottle.

Near-miss negative examples

"The <e1>passengers</e1> will soon get out of the <e2>car</e2>."
WordNet(e1) = "n1", WordNet(e2) = "n1", Content-Container(e1, e2) = "false"

Comment: We prefer Entity-Location(e1, e2) because of restriction (b). Content-Container(e1, e2) is possible under a less strict interpretation.

"The <e1>plane</e1> contained an innovative turbine <e2>engine</e2>."
WordNet(e1) = "n1", WordNet(e2) = "n1", Content-Container(e2, e1) = "false"

Comment: This sentence violates (3) in the definition of Content-Container. If you remove the engine from a plane, you have changed the nature of the plane. Instead we could say Part-Whole(e2, e1), the engine is a part of the plane.

"I think I drank about a <e1>bottle</e1> of <e2>wine</e2>."
WordNet(e1) = "n2", WordNet(e2) = "n1", Content-Container(e2, e1) = "false"

Comment: This sentence violates (2) in the definition of Content-Container. The word "bottle" is used as a unit of measurement, so the sentence does not entail that the wine was inside a bottle. Instead we could say Measure-Measured(e1, e2), a bottle is a measure of the quantity of wine.

"The <e1>macadamia nuts</e1> in the <e2>cake</e2> also make it necessary to have a very sharp knife to cut through the cake neatly."
WordNet(e1) = "n2", WordNet(e2) = "n3", Content-Container(e1, e2) = "false"

Comment: This sentence violates (3) in the definition of Content-Container. If you remove the nuts from the cake, you have changed the nature of the cake. Instead we could say Part-Whole(e1, e2), the nuts are part of the cake.

"Ornette Coleman's crazy <e1>music</e1> was perfect in Cronenberg's <e2>film</e2> *Naked Lunch*."
WordNet(e1) = "n1", WordNet(e2) = "n1", Content-Container(e1, e2) = "false"

Comment: This example is problematic for two reasons. First, it is only true in an abstract sense that the music is "inside" the film. Second, it could be argued that removing the music from the film would change the nature of the film. This is a marginal example. It might be argued that Content-Container(e1, e2) is true. Instead we could say Part-Whole(e1, e2), the music is part of the film.

"The <e1>apples</e1> were stacked in a <e2>pyramid</e2>."

WordNet(e1) = "n1", WordNet(e2) = "n1", Content-Container(e1, e2) = "false"

Comment: The sentence is probably talking about a pyramid made of apples. It is possible, but less likely, that the apples are stored in a pyramidal container. This sentence violates (3) in the definition of Content-Container. If you remove the apples, the pyramid is gone. Instead we could say Part-Whole(e1, e2), the pyramid is made of apples.

"The <e1>book</e1> contained a <e2>chapter</e2> on ants."
WordNet(e1) = "n1", WordNet(e2) = "n1", Content-Container(e2, e1) = "false"

Comment: It is reasonable to say that the chapter is inside the book, so condition (2) is fulfilled. However, removing a chapter from a book likely changes the nature of the book, so condition (3) is violated. Instead we could say Part-Whole(e2, e1), the chapter is part of the book.

"I broke the <e1>wine</e1> <e2>bottle</e2>."
WordNet(e1) = "n1", WordNet(e2) = "n1", Content-Container(e1, e2) = "false"

Comment: We may assume that the wine bottle was intended to hold wine, but the sentence does not tell us whether the bottle holds wine or even whether it may have held wine in the past. Therefore condition (2) is violated. Instead we could say Purpose-Tool(e1, e2), the bottle is a tool for holding wine.

"Deep inside the <e1>forest</e1> there is a huge <e2>tree</e2> where children used to play."
WordNet(e1) = "n1", WordNet(e2) = "n1", Content-Container(e2, e1) = "false"

Comment: This sentence violates condition (3). Removing a tree from a forest is like removing a finger from a person or a slice from a cake. The tree is a component of the forest. Instead we could say Part-Whole(e2, e1), the tree is part of the forest.