

# Is Paris a part of France?

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(1) is true in classical possible worlds semantics if  $x$  and  $y$  stand for propositions,  $<$  for entailment and  $\bullet$  for disjunction. Indeed the oddness of Hurford's disjunctions (Hurford 1974), e.g. *John is in Paris or he is in France*, is typically understood to involve precisely (1) on the assumption that logical disjunction is a plausible candidate for  $[[or]]$ : *John is in Paris or he is in France* denotes the same proposition as *John is in France* and therefore suffers from redundancy (for complications, not obviously related to our point below, see Marty & Romoli 2022 and references therein).

(1) If  $x < y$  then  $x \bullet y = y$

But (1) is also true in the mereological framework (Link 1983) if  $x$  and  $y$  represent individuals with a non-trivial part-whole structure (see e.g. Wagiel 2018),  $<$  mereological parthood and  $\bullet$  mereological fusion. Assuming that fusion is a plausible candidate for  $[[and]]$ , at least in the case of NPs (see Schmitt 2019 for the general case), it seems reasonable to expect that parthood in the realm of conjunction plays the same role as entailment in the realm of disjunction. If so, then we can probe our intuitions of parthood indirectly using redundancy. For example, we may ask: Is  $[[Paris]]$  a mereological part of  $[[France]]$ ? Interestingly, the results are inconclusive. We find one problem for 'yes' and one problem for 'no'.

**The problem for 'no':** Consider (1a). Intuitively, (1a) has a reading equivalent to (1b).

- (2) a. John and Mary visited Paris and London.  
b. Either John visited Paris and Mary London or John visited London and Mary Paris.

Now consider (3).

(3) #John and Mary visited Paris and France.

If  $[[Paris]]$  is not a mereological part of  $[[France]]$  then, on analogy with (2-a), (3) is predicted to be equivalent to *either John visited Paris and Mary France or John visited France and Mary Paris* (i.e. both visited France and at least one of them visited Paris). But this seems inadequate as it fails to explain the intuition that (3) is redundant. On the other hand, if  $[[Paris]]$  is a mereological part of  $[[France]]$  then by (1)  $[[Paris \text{ and } France]]$  is the same individual as  $[[France]]$ , and (3) is predicted to be equivalent to *John and Mary visited France*. If so, then the intuition that (3) is redundant is explained.

**The problem for 'yes':** Consider (4-a). Intuitively, (4-a) is equivalent to (4-b).

- (4) a. John visited Paris and London.  
b. John visited Paris and he visited London.

Now consider (5):

(5) #John visited Paris and France.

If  $[[Paris]]$  is a mereological part of  $[[France]]$  then by (1)  $[[Paris\ and\ France]]$  is the same individual as  $[[France]]$ , and (5) is predicted to be equivalent to *John visited France*. But this seems inadequate as it fails to explain the intuition that (5) entails John visited Paris. However, if  $[[Paris]]$  is *not* a mereological part of  $[[France]]$  then, on analogy with (4-a), (5) is predicted to be equivalent to *John visited Paris and he visited France* which is itself equivalent to *John visited Paris*. If so, the intuition that (5) is redundant due to competition with *John visited in Paris* is explained.

Perhaps a clue to this puzzle is that the variant of (3) with ‘respectively’ (e.g. Gawron & Kehler 2002) which sounds relatively acceptable.

(6) ?John and Mary visited Paris and France respectively.

## References

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