# 3.1.5. Some sample analyses

We will conclude this discussion with several examples illustrating the issues we have discussed. First, a case that is entirely straightforward.

<div align="center">

*It isn't warm out*
¬ *it's warm out*

¬ W
not W

[W: *it's warm out*]

</div>

The next shows that uncovering even a simple form can require some thought and a paraphrase.

<div align="center">

*No one saw anyone enter the building*
¬ *someone saw someone enter the building*

¬ S
not S

[S: *someone saw someone enter the building*]

</div>

Care is needed in distinguishing *not-both* forms from *not-and-not* forms. Everyone understands the distinction quite well intuitively, but it is easy to get tripped up when you are first learning to make this understanding explicit. Compare the following.

<div align="center">

| | |
|---|---|
| *Britain and France won't both vote* | *Britain and France both won't vote* |
| ¬ *Britain and France will both vote* | *Britain won't vote* ∧ *France won't vote* |
| ¬ (*Britain will vote* ∧ *France will vote*) | ¬ *Britain will vote* ∧ ¬ *France will vote* |
| ¬ (B ∧ F) | ¬ B ∧ ¬ F |
| not both B and F | both not B and not F |

[B: *Britain will vote*; F: *France will vote*]

</div>

The negation of a conjunction is not the same as a conjunction of negations. The second form is also the way we would analyze *Neither Britain nor France will vote*.

The scope of negation is one respect in which English sentences are

often ambiguous, and it is not hard to find examples that people will interpret differently. For example, you may find it possible to understand the second sentence above as a denial of *Britain and France will both vote*—i.e., as equivalent to the first. The first seems unambiguous, but other sentences in which *not* appears before *both* are less clear. For example, it might be possible to understand *Tom didn't like both the service and the price* to say that he liked neither (if you have trouble understanding it to say anything *but* that, try reading it with an emphasis on *both*).

Finally, here is a somewhat longer example.

> *Al didn't get to both the meeting and the party without missing both the game and the movie*
> ¬ *Al got to both the meeting and the party without missing both the game and the movie*
> ¬ (*Al got to both the meeting and the party* ∧ ¬ *Al missed both the game and the movie*)
> ¬ ((*Al got to the meeting* ∧ *Al got to the party*) ∧ ¬ (*Al missed the game* ∧ *Al missed the movie*))
> ¬ ((*Al got to the meeting* ∧ *Al got to the party*) ∧ ¬ (¬ *Al got to the game* ∧ ¬ *Al got to the movie*))
>
> ¬ ((T ∧ P) ∧ ¬ (¬ G ∧ ¬ V))
> not both T and P and not both not G and not V

[G: Al got to the game; P: Al got to the party; T: Al got to the meeting; V: Al got to the movie]

The final step of analyzing *X missed Y* as contradictory to *X got to Y* is not crucial at this point in the course. While it is important to exhibit as much logical structure as possible, we end up with four logically independent sentences whether carry out the final step or not. However, when we go on to press analyses below the level of sentences, this sort of step will be of value since it leads us to four components that differ only in the object of the preposition *to* and therefore can be analyzed in a way that re-uses vocabulary.