

4.1.4. Further examples

The first example below illustrates the difference between *not both* and *neither-nor*, but it does so with an analysis of the latter that is closer to English than the one that was used in the examples of 3.1.5.

Ann and Bill didn't both enjoy the meal but neither complained
Ann and Bill didn't both enjoy the meal \wedge *neither Ann nor Bill*
complained

\neg *Ann and Bill both enjoyed the meal* \wedge \neg *either Ann or Bill complained*

\neg (*Ann enjoyed the meal* \wedge *Bill enjoyed the meal*) \wedge \neg (*Ann complained*
 \vee *Bill complained*)

\neg (A \wedge B) \wedge \neg (C \vee D)

not both A and B and not either C or D

[A: *Ann enjoyed the meal*; B: *Bill enjoyed the meal*; R: *Ann complained*;
S: *Bill complained*]

The second example is a sample of the complexity of structure we are now in a position to find in even fairly ordinary sentences.

Either Smith went ahead without Jones or Hardy backing him, or else Brown knew of his wishes and carried them out without consulting him

Smith went ahead without Jones or Hardy backing him \vee *Brown knew of Smith's wishes and carried them out without consulting him*

(*Smith went ahead* \wedge \neg *Jones or Hardy backed Smith*) \vee (*Brown knew of Smith's wishes* \wedge *Brown carried out Smith's wishes without consulting him*)

(*Smith went ahead* \wedge \neg (*Jones backed Smith* \vee *Hardy backed Smith*))
 \vee (*Brown knew of Smith's wishes* \wedge (*Brown carried out Smith's wishes*
 \wedge \neg *Brown consulted Smith*))

(A \wedge \neg (J \vee H)) \vee (K \wedge (C \wedge \neg N))

either both A and not either J or H or both K and both C and not N

[A: *Smith went ahead*; C: *Brown carried out Smith's wishes*; H: *Hardy backed Smith*; J: *Jones backed Smith*; K: *Brown knew of Smith's wishes*; N: *Brown consulted Smith*]

Notice how often it was necessary to replace a pronoun by its antecedent in order to uncover components that were independent sentences. If this

replacement changed the meaning, analysis would be impossible. Consider a sentence like the one above but having *a certain partner* where that one has the name *Smith*.

Either a certain partner went ahead without Jones or Hardy backing him, or else Brown knew of his wishes and carried them out without consulting him

We can analyze this as a disjunction *A certain partner went ahead without Jones or Hardy backing him* \vee *Brown knew of a certain partner's wishes and carried them out without consulting him*; but we can go no further with the analysis until we have other sorts of logical form at our disposal.

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