

3.5. Inversion: An English Curiosity

To our list of translation variations we append a final bit of English oddness.

Translating Sentence (1) into Formalese is simple enough: with “although” the only form phrase, this sentence is a simple conjunction, taking formal conjunction (F1) as its translation.

(1) Rex was cut from the team, **although** he tried his best.

P: Rex was cut from made the team

Q: Rex tried his best

(F1) (**P** \wedge **Q**)

Sentence (2) seems to make the same claim as (1) – even using the same words to do so.

(2) **Although** he tried his best, Rex was cut from the team.

Yet for all its simplicity, (2) puzzles us in two ways. *First*, “although,” as a conjunction phrase, connects left and right parts. But note that there is nothing to the left of “although,” getting connected to what follows. *Second*, between the two subject matter sentences “[Rex] tried his best” and “Rex was cut from the team,” no form phrase appears to glue the sentences together.

But those two bits of oddness are just two sides of the same coin: a left-right form phrase without the usual left and right parts, and two parts lacking a left-right form phrase to unite them. Intuitively, English starts with Sentence (1), and yields (2) by shifting “although,” and the sentence that follows, to the front of the sentence.

(2) **Although** he tried his best, Rex was cut from the team _____.



We will say that Sentence (2) is an **inverted** version of Sentence (1), and that Sentence (1) is a **standard** (meaning: non-inverted) “although” sentence.

(1) Rex was cut from the team, although he tried his best.

(2) Although he tried his best, Rex was cut from the team.

Other ‘left-right’ form phrases of English, such as the conjunction phrase “even though” and the disjunction phrase “unless,” also allow inversion.

(3) It’s not raining, even though it’s cloudy

(4) Even though it’s cloudy, it’s not raining _____.



(5) Rex will fail the exam unless he studied.

(6) Unless he studied, Rex will fail the exam _____.



But beware this seemingly trivial stylistic variation of English – for **no** such option is permitted in Formalese. The following ‘inverted’ formal translation of (2) is gibberish.

P: Rex was cut from made the team

Q: Rex tried his best

(2) Although he tried his best, Rex was cut from the team.

☠ **Some Formal Gibberish** ☠

(\wedge Q P)

A wedge must always appear *between* the left and right parts it connects.
There are no inverted sentences in the formal language.

How, then, to translate an inverted English sentence such as (2)? Two options are equally acceptable.

We could *undo* the inversion in Sentence (2), then translate the standard (uninverted) conjunction that results. On this approach Sentence (2) is translated, like Sentence (1), into the formal sentence “ $(P \wedge Q)$ ”.

P: Rex was cut from the team

Q: Rex tried his best

(2) _____ Rex was cut from the team, although he tried his best



$(P \wedge Q)$

Or we could leave the two parts of Sentence (2) where they lie – “**Q**” first, “**P**” second – so long as the formal translation recognizes that these two parts are being *conjoined* together. On this approach, Sentence (2) translates as “ $(Q \wedge P)$ ”.

We can afford to be casual about which option to follow because **in conjunctions, order of parts makes no difference to truth**. Whenever it’s true that “We’re having *both* ice cream *and* cake” it’s true that “We’re having *both* cake *and* ice cream” (and vice versa).

The same holds for **disjunctions**: whenever it’s true that “We’re having *either* ice cream *or* cake,” it’s true that “We’re having *either* cake *or* ice cream” (and vice versa).

(In technical jargon, this is called the **commutativity** of conjunctions and disjunctions. But it’s easier to remember it as the “irrelevance of order” for these sentences.)

And since validity depends on issues of truth, the **validity of an argument is likewise indifferent to the order of parts** in a conjunction or disjunction.