Conditions need to be fulfilled for LL(1) Grammar

If the grammar is ∈- free:

For every pair of productions $A \rightarrow \alpha \mid \beta$

FIRST(α) ∩ FIRST(β) = φ (i.e., FIRST(α) and FIRST(β) should be disjoint sets for every pair of productions $A \rightarrow \alpha \mid \beta$)

When the grammar is not ∈-free:

For every pair of productions $A \rightarrow \alpha \mid \beta$, the following 2 conditions must hold

(i) FIRST(α) ∩ FIRST(β) = φ , and
(ii) if FIRST(β) contains ∈, and FIRST(α) does not contain ∈, then
FIRST(α) ∩ FOLLOW(*A*) = φ

Example:

Consider the following grammar, and test whether the grammar is *LL*(1) or not.

S→1AB / Ɛ ,   A→1AC / 0C ,   B→0S ,   C→1

Since the given grammar is not ∈ free.

For a pair of productions *S* → 1*AB* | ∈:

FIRST(1AB) ∩ FIRST(∈) = {1}∩ {∈}= φ and

FIRST(1AB) ∩ FOLLOW(S) = {1}∩ {$}= φ

Similarly, for a pair of productions *A* → *1AC* | *0C:*

FIRST(1AC) ∩ FIRST(0C) = {1}∩ {0}= φ

Hence the grammar is LL(1).