## 20220321 notes : On a certain conjecture for $\varphi(n)$

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We propose the abc conjecture for the derived logarithmic function $L(n)$ of the Euler function $\varphi(n)$, in which we also propose the following conjecture.

Conjecture 1. (Conjecture A) For natural numbers $n>1$, there is always at least one prime number in the semi-closed interval $(\varphi(n), n]$.

Conjecture 2. (Conjecture B) For composite numbers $n>1$, there is always at least one prime number in the closed interval $[\varphi(n), n]$.

Conjecture B is sufficient for $n$ in Conjecture A if $n$ is also a prime number.
For conjecture $B$, for composite numbers $n$ less than or equal to $5 \times 10^{8}$, we have
$n=9, n=25, n=121$
or else $[\varphi(n), n]$ has more than 2 primes by PC.
These conjecture is more stringent than Brocard's conjecture (unresolved) of the existence of a prime number between the squares of consecutive primes.

