No. 28: T or F: If \( f = o(g) \), then algorithm \( f \) always runs faster than \( g \), in all cases.

I think this is true, since little omicron means strictly faster than. However, I'm not sure if the notation specifically means only for worst case and large input size (so NOT in all cases). Can anyone verify this?

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When you use notation, you set a bound of \( N(o) \) which \( N \geq N(o) \) for which it is true. So no, not all cases, but once a \( N(o) \) is chosen, then for all \( N \) such that \( N \geq N(o) \) is true then \( f = O(g) \). Or, in your case, \( N > N(o) \) \( \rightarrow \) \( F = o(g) \)

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Still, only true for inputs that cause worst case behavior. \( \text{mergesort} = o(\text{insertion sort}) \), but \( \text{insertion sort} \) can run faster than \( \text{mergesort} \) for arbitrarily large input sizes for inputs that do not cause worst case behavior.