The Drinker Paradox in ℕaproche

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The *Drinker Paradox* is a principle of classical predicate logic popularised by the logician Raymond Smullyan in his 1978 book *What Is the Name of this Book?* [1] which can be stated as:

> There is someone in the pub such that, if he is drinking then everyone in the pub is drinking.

Signature. The pub is a place.

Theorem (Drinker Paradox). Assume that there is a person inside the pub. Then there is a person P inside the pub such that if P is drinking then every person inside the pub is drinking.

Proof by case analysis.

Case every person inside the pub is drinking. Choose a person P inside the pub. Then P is drinking and every person inside the pub is drinking. Hence if P is drinking then every person inside the pub is drinking. □

Case there is a person inside the pub that is not drinking. Consider a person P inside the pub that is not drinking. Then if P is drinking then every person inside the pub is drinking. □

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References

[1] Raymond M. Smullyan. *What is the name of this book? – The riddle of Dracula and other logical puzzles*. Prentice-Hall, 1978.

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