Scope without Syntax
Towards a Game Theoretic Approach

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- For the purposes of sentence interpretation, quantifiers are quite a puzzle. Especially when there are multiple quantifiers in a sentence, a sentence may become ambiguous.

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- In the second, we say that the $\exists$ takes wide scope over the $\forall$.

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  - ▶ Highly context sensitive
  - ▶ Sensitive to linear order

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- This can allow us to formally analyze an apparent "functional" alternation.

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    (2) Billy ate most of the chocolates.

- Sentences like this in actual language are inferred to mean that Billy ate most *but not all chocolates*, although the sentence is logically still true if he did.

- However speakers *assume* Billy didn't eat *all* the chocolates because if that were true, a speaker probably would've said so.

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- Moving around nouns via 'transformations' (passivization, clefting, etc.) is costly/marked/undesirable.
- Scrambling (to be discussed later), as opposed to transformations are not similarly costly.

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- Here, the strongly preferred reading is the one where there is a pair of men for each hole ($\forall > \exists$), while the case where there is two specific men for each hole is harder to get out of the blue.

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- However, both of these sentences *must have* **surface scope**. They cannot be ambiguous.

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- Remember, **surface scope** is preferred and **transformations** are costly.

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- These two possibilities produce scope ambiguity.

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- **Sidenote:** Potentially related, languages with scrambling/flexible word order, usually rely on things like passivization less often.

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  (13)   Billy yek kitābi-rā   na-xand.
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- This holds in similar languages with scrambling and stable negation location (e.g. Korean).

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  - ▶ Motivate any apparent exceptions.