# Categorical Logic: Translations and Immediate Inferences

These exercises are taken from Hurley and Watson section 4.7.

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| **Key word (to be eliminated)** | **Translation hint** |
| whoever, wherever, always, anyone, never, etc. | use “all” together with people, places, times |
| a few, several, many | use “some” |
| if … then | use “all” or “no” |
| unless | use “if not” |
| only, none but, none except, no … except | use “all” |
| the only | use “all” |
| all but, all except, few | two statements required |
| not every, not all | use “some … are not” |
| there is, there are | use “some” |

Translate each statement in the following arguments into a standard form categorical statement. Then, use what you have learned about Venn Diagrams, the square of opposition, immediate inferences, etc. to evaluate the validity of the inferences.

1. Flu vaccines are never completely effective. Therefore, not every flu vaccine is completely effective.
   1. **Answer: No flu vaccines are completely effective medicines. Therefore, some flu vaccines are not completely effective medicines. (valid)**
2. Only diamonds are a girl’s best friend. Therefore, every diamond is a girl’s best friend.
3. A child destined to succeed in life has high self-esteem. Therefore, a child with low self-esteem is not destined to succeed in life.
4. If a date is a good dinner companion, then she does not spend every minute texting. Therefore, if a date does not spend every minute texting, then she is not a bad dinner companion.
5. There are banks that engage in money laundering. Therefore, there are banks that do not engage in money laundering.
6. Not a single major storm fails to cause flight cancellations. Therefore, every major storm causes flight cancellations.
7. Tax cuts never please everyone. Therefore, every tax cut pleases everyone.
8. Military exercises are sometimes condemned by opponents. Therefore, any military exercise is condemned by opponents.
9. It is false that not a single charter school is an academic underperformer. Therefore, several charter schools are academic underperformers.
10. Fake artworks are sold on eBay. Therefore, a few items sold on eBay are fake artworks.

Create a total of twelve new categorical propositions that are NOT in standard form that may be described as follows. After you’ve done this, translate the propositions you have created into standard form categorical statements.

1. One that lacks a predicate noun phrase.
   1. **Example: “Jack ran.” Translation: “All people identical to Jack are people who ran.”**
2. One contains the nonstandard verb “will.”
   1. **Example: “No one will be coming to my party on time.” Translation: “No people are people who will be coming to my party on time.”**
3. One begins with the name “Margie.”
4. One contains the adverb “never.”
5. One contains the pronoun “whoever.”
6. One contains an unexpressed quantifier (i.e., it doesn’t say explicitly whether it is making a claim about some or all of subject class.).
7. One begins with the words “Not everyone.”
8. One begins with the word “Few.”
9. One begins with the words “A few.”
10. One is a conditional (if … then) statement.
11. One contains the word “unless.”
12. One begins with the word “Only.”