# 5.2.1. Names and Predicates:
# Construction and Translation Problems

**A**. For each of the strings of symbols below, decide whether it a **formal sentence** according to the rules of our revised construction rules listed here.

### Revised Construction Rules (*First Draft*)

**Atomic Sentences**:

A1. Sentence letters are atomic sentence
A2. A predicate letter followed by a name letter is an atomic sentence.

**Formal Sentences**:

1. Atomic sentences are formal sentences.

2. If ● is a formal sentence, then ~● is a formal sentence.

3. If ● and ▲ are formal sentences, then (● ∧ ▲) is a formal sentence.

4. If ● and ▲ are formal sentences, then (● ∨ ▲) is a formal sentence.

5. If ● and ▲ are formal sentences, then (● → ▲) is a formal sentence.

1. (Ga ∨ Ha)
2. ~Ba
3. (a ∧ P)
4. Hab
5. (P → Mc)
6. (G ∨ H)a

**B**. Using the translation key below, **translate** each of these English sentences into our (revised) formal language.

**a**: Trixie
**b**: Suki
**c**: Rex
**d**: Kitty
**e**: Jack

**G**: __ gamble / is a gambler
**H**: __ is a logician
**I**: __ like logic
**J**: __ plays poker
**K**: __ surfs / is a surfer

1. Trixie is a gambler, but Rex isn't.
2. Suki is neither a gambler nor a logician.
3. If Rex is a logician, then he likes logic.
4. Although Kitty doesn't play poker, she is a gambler.

5a. Rex isn't a surfer, and he isn't a gambler.
5b. Rex isn't a surfer who gambles.
5c. If Rex neither surfs nor gambles, then he isn't a gambler who surfs.

(6)

1. Jack is either a surfer who gambles or one who doesn't.

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∴ Jack is a surfer.

**C**. **Translate** the following English arguments into the formal language (showing the **translation key** used).

(1)

1. Neko is chubby and Neko is food-obsessed and Neko is an inventor.

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∴ Neko is a chubby, food-obsessed inventor.

(2)

1. Jack isn't both a coffee drinker and a tea drinker.

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∴ If Jack's a tea drinker, he's not one who also drinks coffee.

(3)

1. Jack is either a coffee-drinking surfer, or one that drinks tea.

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∴ Jack is a surfer, and is either a coffee drinker or a tea drinker.

(4)

1. Jack isn't a coffee-drinking logician.

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∴ Jack doesn't drink coffee.

(*Q: Which, if any, of these arguments seem valid?*)