# Logical Forms of Generics and Belief Contraction

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The following sentences are examples of *generics*:
(1) Dogs bark.
(2) Mosquitoes carry the West Nile Virus.
Generics are used ubiquitously in various natural languages. Cohen's theory (1999) is one of the most promising theories of generics. Cohen proposes a probabilistic account of generics. Let *Alt(F)* denote a contextually determined set of alternatives to a predicate *F* and *Alt(K)* a contextually determined set of alternatives to a kind *K*. Cohen distinguishes between two different classes of generics: absolute and relative generics:
*Absolute Generics*: `*K*s are *F* is true iff the probability (*relative frequency*) that an arbitrary *K* that satisfies some predicate in *Alt(F)* satisfies *F* is greater than 0.5.
*Relative Generics*: `*K*s are *F* is true iff the probability (relative frequency) that an arbitrary *K* that satisfies some predicate in *Alt(F)* satisfies *F* is greater than the probability (relative frequency) that an arbitrary member of *Alt(K)* that satisfies some predicate in *Alt(F)* satisfies *F*.
(1) is a true absolute generic because the probability that an arbitrary dog barks is greater than 0.5. (2) is a true relative generic because an arbitrary *mosquito* is far more likely to carry the virus than an arbitrary *insect*. Leslie (2007, 2008) points out the three shortcomings of Cohen's theory. Asher and Pelletier (2013) point out five more shortcomings of Cohen's theory. In Suzuki (2020), we propose a new version of logic for generics---First-Order Logic for Generics (*FLG*)---that can overcome all of the eight shortcomings. To accomplish this goal, we provide *FLG* with an intuittionistic-Bayesian semantics. The first aim of this talk is to point out the problem that the intuitionistic-Bayesian semantics of *FLG* confronts. This problem has such a universal character that *any probabilistic semantics* of logics based on Stalnaker Thesis (cf. Stalnaker (1970) for generics in which the logical forms of generics are given by the universal quantifier and some kind of indicative-conditional connective can confront this problem. The probabilistic representation of *belief contraction* in AGM (cf. Gärdenfors (1988)) plays essential roles in various fields when we try to analyze concepts and furnish solutions to problems. For example, in epistemology, Gärdenfors (1988) gives a probabilistic analysis of causality in terms of belief contraction. In philosophy of science, in Suzuki (2005), we give a solution to the old evidence problem posed by Glymour (1980) to

Bayesian confirmation theory in terms of belief contraction. The second aim of this talk is to modify the intuitionistic-Bayesian semantics of *FLG* by belief contraction so that it may be free from this problem. （使用言語：日本語）

## References

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