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Reconciling Inquisitive Semantics and Generalized Quantifier Theory

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In the 2010s, Inquisitive Semantics (IS) has risen to become an influential theory that provides a uniform treatment for declaratives and interrogatives. While in its early years IS analyses treated the whole sentence as a unit, in recent years attempts have been made to extend the analyses to subsentential constituents, including quantifiers, which have been extensively studied under Generalized Quantifier Theory (GQT). However, the treatment of quantifiers under IS as in Theiler (2014) and Ciardelli *et al* (2017) is very different from the traditional treatment of GQT. Apart from treating many quantifiers as being inquisitive, IS also has to use specifically designed operators $\triangleright$ and ~ for the denotations of some quantifiers, such as the following denotation of the determiner "no" as appeared in Ciardelli *et al* (2017):

(1) no = $\lambda X \lambda Y[\bigcap_{x \in U'}(X(x) \triangleright {\sim}Y(x))]$

The above denotation is very different from the one under GQT:

(2) no = $\lambda X \lambda Y[X \cap Y = \varnothing]$

The reason for the discrepancy between the two theories is that the unary predicates X and Y in (1) have type e→(s→t)→t, while those in (2) have type e→t. A consequence of this discrepancy is that we may have to abandon the treatment of GQT and it is not clear whether all quantifiers successfully treated under GQT, such as "more boys than girls", can be treated in a comparably elegant way under IS.

To solve the problem, I first argue for a non-inquisitive version of quantifiers, which is adequate for the usual purpose of treating quantified statements. I next observe that a predicate under IS in fact contains a lot of redundancy because each such predicate is the power set of a set of possible worlds. By eliminating the redundancy, we can derive predicates with a simpler type, i.e. s→(e→t). In other words, corresponding to each predicate X with type e→(s→t)→t, there is a predicate X^* with type s→(e→t). By using X^*, the traditional treatment of GQT can then be restored under the framework of IS. For example, the denotation of "no" will become

(3) no = $\lambda X \lambda Y[\text{Power}(\{w: X^*(w) \cap Y^*(w) = \varnothing\})]$

where Power represents the power set operation. Since X^* and Y^* have type s→(e→t) and w is a variable with type s, $X^*(w)$ and $Y^*(w)$ have type e→t, and so "$X^*(w) \cap$

$Y^*(w) = \varnothing$" in (3) is exactly parallel to "$X \cap Y = \varnothing$" in (2). Other quantifiers can also be treated in the same line as in (3). The proper treatment of quantifiers has significance in the study of interrogatives containing quantifiers, such as "Which book is liked by more boys than girls?", which contains the quantifier "more boys than girls". The results of this study can thus contribute to a proper treatment of these interrogatives.

References

Ciardelli, I., Roelofsen, F. and Theiler, N. (2017), "Composing alternatives", *Linguistics and Philosophy*, 40:1, pp. 1-36

Theiler, N. (2014), *A Multitude of Answers: Embedded Questions in Typed Inquisitive Semantics*, MSc thesis, Universiteit van Amsterdam