Actuality Entailment and Quantificational Adverb Effect*

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1. Introduction

It is well-known that ability modals do not always merely express a possibility; they sometimes force the proposition expressed by their complement to be actualized in the real world. The examples below (borrowed from Piñón (2003)) illustrate actuality entailment (AEs) in the sense of Bhatt (1999) and Hacquard (2006).

(1)  a. In her twenties, Jane was able to swim across Lake Balaton, though she never did.  
     (Past generic)
   b. Yesterday, Jane was able to swim across Lake Balaton, but she didn’t.  
     (Past episodic)

Tsai and Portner (2008) observe that in Mandarin, quantificational adverbs (Q-ADVs) necessarily trigger AEs when they precede ability modals, dubbed as Q-ADV Effect (QAE). The presence of actuality entailment in (2a) is evidenced by (2b), which leads to a contradiction as indicated by #.

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(2) a. Zilu yixiang/ changchang/ youshihou neng canjia xiwu-huiyi.
Zilu always often sometimes be-able-to attend faculty meeting
'Zilu is always/often/sometimes able to attend faculty meetings.'
b. …#dan ta conglai mei canjia -guo renhe xiwu-huiyi.
but he never have.not attend-EXP any faculty meeting
'…#but he has never actually attended any faculty meetings.'

In contrast, AEs disappear when Q-adverbs follow the ability modal. The absence of AEs in (3a) is evidenced by the felicity of (3b), which is a continuation canceling the inference.

(3) a. Zilu neng changchang/ youshihou canjia xiwu-huiyi.
Zilu be-able-to often sometimes attend faculty meeting
'Zilu is able to attend faculty meetings often/sometimes.'
b. …dan ta conglai mei canjia -guo renhe xiwu-huiyi.
but he never have.not attend-EXP any faculty meeting
'… but he has never actually attended any faculty meetings.'

QAE raises many interesting questions: (a) Why and how do Q-ADVs lead to AEs? (b) Why is the relative word order between Q-Adverbs and ability modals relevant to AEs? (c) Assuming the widely-held view that Q-adverbs are quantifiers over situations (e.g., von Fintel 1994, 2004, Krifka et al. 1995) and modals quantifiers over worlds (e.g., Kratzer 1981, 1991, cf. Hacquard 2009, 2010), can we give a compositional semantic account of QAE while maintaining the traditional wisdom on the distinction between these two types of quantifiers? This paper provides an answer to these questions.

2. Proposal

Following the literature on Q-ADVs (Krifka et al. 1995; von Fintel 1994, 2004, a.o.) and modals (Kratzer 2014, a.o.), I assume that the former are quantifiers over situations and the latter quantifiers over worlds. To make the two types of quantifiers compositionally compatible, I first suggest that Q-ADVs take a world \( w^* \) and anchor to the world those situations quantified by Q-ADVs. The domain restriction of adverbial quantifiers is contextually supplied, min(C(s)): a set of minimal and contextually relevant situations. I further suggest that modals take a situation in which the prejacent proposition is true. Seen in this way, a proposition (of type \( <s, st> \)) is true not only in a given situation \( s' \) but also in the world \( r \) to which the situation \( s' \) is anchored — the part-whole relation between a situation and a world. Take youshihou ‘sometimes’ and neng ‘able-to’ for instance, (4) and (5) below illustrate the points.
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(4) \[ [[\text{youshihou}]]^w: g = \lambda p_{<s, s^*}, \lambda s^*_{<s^*}, \lambda w^*_{<s^*}, \exists s_{<s}\left[\min(C(s)) \wedge s \leq s^* \leq w^* \wedge p(s)(w^*) = 1 \right] \]

(5) \[ [[\text{neng}]]^w: f = \lambda q_{<s, s^*}, \lambda s^*_{<s^*}, \lambda w^*_{<s^*}, \exists r \left[ r \in \text{Best}_{g(w)}(\cap f_{\text{circumstantial}}(w^*)) \wedge s' \leq r \wedge q(s')(r) = 1 \right] \]

where \text{Best}_{g(w)}(X) selects the most ideal worlds from modal base X, given the ordering based on \( g(w) \)

In a similar spirit of the principle of event preservation proposed in Hacquard (2006, 2009), I assume a semantic principle of situation preservation (PSD) below:

(6) \textit{Preservation of Situation Description (PSD)}

For all worlds \( w_1, w_2 \), if \( s_1 \) occurs in \( w_1 \) and in \( w_2 \), and \( s_1 \) is a P-situation, then \textit{ceteris paribus}, \( s_1 \) is a P-situation in \( w_2 \) as well.

What (6) says is that whatever properties define a situation \( s \) in \( w_1 \), those defining properties of \( s \) are preserved in \( w_2 \). Given (4) - (6), assuming (i) Percus (2000) where the matrix clause provides the default world (i.e., actual world \( w_0 \)), (ii) an existential closure finally closes the last situation variable (e.g., \( s^* \) in (7) and \( s' \) in (8)) and (iii) the surface word order reflects the LF scope relation (Huang 1982), the semantic representations of (2) and (3) are provided in (7) and (8) respectively:

(7) a. \textit{Zilu} \textit{youshihou} \textit{neng} \textit{canjia} \textit{xiwu-huiyi}.

Zilu \textit{sometimes} \textit{be-able-to} attend faculty meeting

'Zilu is sometimes able to attend faculty meetings.'

b. \( \exists s^*_{<s}, \exists s_{<s}\left[\min(C(s)) \wedge s \leq s^* \leq w_0 \wedge \exists r \left[ r \in \text{Best}_{g(w_0)}(\cap f_{\text{circumstantial}}(w_0)) \wedge s \leq r \right] \right] \)

Zilu attends the faculty meetings in \( s \) in \( r \]

c. There are some actual situations \( s \) that are minimal and contextually relevant and there is (at least) a best world \( r \) that is compatible with the circumstances of those actual situations \( s \) such that \textit{Zilu} attends faculty meetings in \( s \) in \( r \).

(8) a. \textit{Zilu} \textit{neng} \textit{youshihou} \textit{canjia} \textit{xiwu-huiyi}.

Zilu \textit{be-able-to} \textit{sometimes} attend faculty meeting

'Zilu is able to attend faculty meetings sometimes.'

b. \( \exists s'_{<s}, \exists r \left[ r \in \text{Best}_{g(w_0)}(\cap f_{\text{circumstantial}}(w_0)) \wedge s' \leq r \wedge \exists s_{<s}\left[\min(C(s)) \wedge s \leq s' \wedge \exists r \right] \right] \)

Zilu attends the faculty meetings in \( s \) in \( r \]

c. There is (at least) a best world \( r \) and there are some situations \( s \) such that \( s \) is part of \( r \) and \( r \) is compatible with the circumstances of \( s \) such that the proposition that \textit{Zilu} attends faculty meetings is true in \( s \) in \( r \).
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The crucial difference between (7) and (8) is what world those situations quantified by Q-ADVs are anchored to. In (7), it’s the actual world $w_0$ and AEs appear. In (8) it’s the world $r$ quantified by the modal and AEs disappear. This explains why the word order is relevant to AEs. QAE is thus derived.

3. Conclusion

This study supports Bhatt (1999)’s and Hacquard (2006, 2009)’s view that AE should be better considered as a scope phenomenon (at the matrix clause). AE arises when certain quantifiers anchor the quantified events/situations to actual world. More specifically, when a Q-adverb is \textit{structurally higher} than (i.e., scopes above) the ability modal, the former anchors their quantified situations to the actual world, thus AE arises. However, when a Q-adverb is \textit{structurally lower} than (i.e., scopes below) the ability modal, the former anchors their quantified situations to the worlds provided by the ability modal. Thus, no AE arises. Finally, this line of research suggests that perfective aspect is \textit{not} the sole factor leading to AE.

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References


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