What the gentle murder paradox
means to event semantics[*]

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There has been several proposals to resolve the gentle murder paradox; Forrester claims that the paradox shows that the deontic closure principle should be abandoned, while Sinnott-Armstrong claims that the paradoxical result arises from the scope ambiguity. However, I shall argue, the gentle murder paradox hinges on the logical structure of adverbial expressions. Although Davidson shows an insightful way of understanding logical structure of adverbs, there has been misunderstandings concerning the nature of his account. Especially what is called neo-Davidsonian event semantics is based upon combination of two fundamentally conflicting ideas. I shall propose a new way of understanding Davidson's account, on the basis of which I continue to give a new diagnosis of the gentle murder paradox.

【주요어】 gentle murder paradox, event semantics, adverbs, Davidson, deontic logic

1

The gentle murder paradox is paradoxical in the sense that, from innocent premises, two seemingly conflicting obligations seem to follow: one ought *and* ought not to murder someone. Consider one particular murder. Cain murders Abel. Cain ought not to commit this murder. It would be paradoxical if one concludes that Cain ought to murder Abel. How does this result follow? Let 'p' express the proposition that Cain murders Abel, 'q' the proposition that Cain murders Abel gently, '⊃' material implication, and 'O' the operator meaning 'it is obligatory that'. The following (1)-(3) are given as premises:

(1) p   [Cain murders Abel.]
(2) O~p   [It is obligatory that Cain does not murder Abel.]
(3) O(p⊃q)   [It is obligatory that if Cain murders Abel he does so gently.]

Then, from (1) and (3) the following is drawn:

(4) Oq   [It is obligatory that Cain murders Abel gently.][1]

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[1] For it is assumed that $O(p \supset q)$ implies $p \supset Oq$. This is generally accepted by those who regard a conditional connective in conditional

If Cain murders Abel gently, presumably, it is logically implied that Cain murders Abel. That is,

(5) q→p   [Cain murders Abel gently only if Cain murders Abel.]

where '→' expresses strict entailment. (If we used material entailment in (5), (5) would be drawn trivially from (1).) From (4)-(5) one gets

(6) Op   [It is obligatory that Cain murders Abel]

since (q→p) entails (Oq→Op) (by what is called 'the deontic closure principle') in standard deontic logic.

Now we have a paradoxical situation: Cain ought and ought not to murder Abel. What is wrong? Forrester claims that the deontic closure principle should be abandoned. (Forrester 1984). Sinnott-Armstrong disagrees with him. He believes that (4) has the scope ambiguity problem. According to him, (4) might be interpreted in the following two ways:

[4.1] It is obligatory that there is a such-and-such event and the event is gentle.

[4.2] There is a such-and-such event and it is obligatory

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obligation as binary. In other words, according to them, since $O(p \supset q)$ is conditional obligation, not *prima facie* obligation, it should mean $p \supset Oq$. See Bonevac 1998.

tht the event is gentle.

Sinnott-Armstrong claims that the correct interpretation of
(4) should be [4.2] and it is [4.1] that yields the paradoxical
result. His analysis relies upon a particular way of
understanding adverbial expressions. That is, according to
him, the proposition q means that there is a such-and-such
event and the event is gentle. And this analysis goes back
to Davidson (1967). In this article I shall argue that if one
follows Davidson's event-based analysis of adverbs, as
Sinnott-Armstrong does, she finds that the root of paradox
does not lie in the scope ambiguity of (4) but in the way
of understanding the logical role of adverbial expressions in
intensional contexts.

2

What is the logical role of adverbial expressions? Two
seemingly incompatible roles are given to adverbs.
(Davidson 1985). One is negative in the sense that adverbs
add nothing substantial to what is said. As the expression
'adverb' suggests, it is quite natural to think of adverbial
expressions as modifying verbs or predicates. Without verbs
or predicates no complete propositions are expressed.
However, a complete proposition might be expressed
without adverbs modifying verbs or predicates. Nouns,

verbs, and adjectives are language's bread and butter in a language, while adverbs are only special treats which make breakfast look better but can be omitted. Generally, a sentence S with an adverb entails S without the adverb, which I call 'Adverb-Out' rule. For example, the following is valid by Adverb-Out:

(7) Jones buttered the toast in the bathroom. Therefore, Jones buttered the toast.

One the other hand, it seems that adverbs play a substantial role in expressing propositions: adverbs provide more specific information about what is said. One can add more detailed information concerning what Jones did by adding adverbs: Jones buttered the toast in the bathroom with a knife at midnight. Given that adverbs can be dropped without changing what is said, how is it possible to add more to what is said by adding adverbs?

Davidson's famous analysis of logical form of action sentences denies that adverbial expressions add nothing substantial to what is said. For "adverbial modification is seen to logically on a par with adjective modification: what adverbial clauses modify is not verbs but the events that certain verbs introduce."(Davidson 1969: 167). By modifying events adverbs play the indispensable role in expressing complete thoughts. Davidson also explains why Adverb-Out rule is generally accepted. Adverbs can be dropped as in (7)

not because adverbs are insubstantial appendixes but because events have fineness of grain: the experiential content of an event is rich enough for the witness to make the list of descriptions of it go (theoretically) infinitely. And in the semantic level this is backed up by 'And-Out' rule: 'p and q' entails 'p' and/or 'q'.

3

Adverb-Out rule cannot be generalized, however. Consider the following:

(8) Probably Jones buttered the toast. Therefore, Jones buttered the toast.

(9) Susan calls Jones only in emergent cases. Therefore, Susan calls Jones.

(10) Jones closed the door partway. Therefore, Jones closed the door.

(11) Jones wishes he will die with honor. Therefore, Jones wishes he will die.

One might respond that there are two kinds of adverbs: one modifies predicates while the other modifies sentences. (Thomason 1971, Cresswell 1985). For example, 'probably' in (8) does modify the sentence 'Jones buttered the toast', not the verb 'buttered'. Since the adverbial phrase 'in emergent

cases' in (9) means the conditional clause, it also modifies the sentence 'Susan calls Jones'. But the problem is, Is there any systematic way to distinguish these two kinds of adverbs? In Montague's categorial semantics adverbs are treated as sentential operators, which is of category $<0,0>$, such as 'not' (Montague 1974). Intensional logicians such as Montague might respond to the question by denying that an adequate semantic theory should make every entailment relations in natural language explicit. (Cresswell 1985: 28). In other words, language users can, implicitly or explicitly, discern the two kinds of adverbs; otherwise it is illegitimate that they are said to understand meanings of the expressions. By referring to meanings of expressions that the language users are assumed to understand already, one finds no need to explain why entailment fails in (8)-(11). However, I suggest, an adequate semantic theory should be able to explain why entailment fails in (8)-(11) and how the distinction between the two kinds of adverbs is made without taking meaning for granted.

4

To explain entailment failures one might classify verbs into several kinds. According to Zeno Vendler verbs can be grouped into four categories: activity, accomplishment, state, and achievement. Activity and accomplishment verbs can be

put into the progressive form. The difference between them
is that action denoted by an accomplishment verb has
climax while an activity verb not. For example, 'run' is an
activity verb and 'run one mile' is an accomplish verb. On
the other hand, state and achievement verbs cannot be put
into the progressive form. And action denoted by an
achievement verb has climax while a state verb not. For
example, 'know' is a state verb and 'win' is an achievement
verb. On the basis of this way of grouping verbs David
Dowty takes state verbs as elementary and analyzes other
categories of verbs as a result of applying operators to
state verbs. For example, the activity verb 'die' is the verb
that results from the state verb 'be dead' combined with the
operator 'become'. (Dowty 1979).

By introducing subgroups of verbs one might explain why
entailments fail in some cases. 'Abel is dead' is entailed by,
but does not entail, 'Abel is killed' since 'kill' has 'dead' as
one of its meaning constituents but not vice versa. Consider
(11). Given that the verb 'die' is decomposed of the state
verb 'be dead' and the operator 'become', the adverb 'with
honor' is supposed to modify the state of being dead, not
the verb itself. What Jones wishes concerns the way he is
dying, not every aspect of his death.

5

The problem with Dowty is that his theory does not

explain Adverb-Out rule even though it might explain counterexamples of Adverb-Out rule. It does not explain the ground of the distinction of sentence adverb/predicate adverb, either. On the other hand, the Davidsonian account, as we saw, explains instances of Adverb-Out rule but is susceptible to counterexamples. Thus, one might hope that we could combine the strengths of each account into one single theory. What is called 'neo-Davidsonian semantics' pursues this compromising approach. (Parsons 1990). However, this combination, regardless of its technical viability, is combination of two incompatible approaches with different spirits. According to the Davidsonian account, what explains logical behaviors of adverb is the structure of events. In contrast, Dowty's theory appeals to decomposition of meaning. An event itself does not determine which group of verbs one should use to describe it. For example, from watching the same event, one might describe it as 'Jones ran one mile' or as 'Jones ran'... What distinguishes between 'run' and 'run one mile' is that the event under the description 'Jones ran one mile' has the climax while the event under the description 'Jones ran' not. But they are one and the same event. Thus, when one has the climax the other must do so.

6

In order to explain the Adverb-Out rule the Davidsonian

account does not have to take meanings of each adverb for granted. As said, it can explain the cases of Adverb-Out rule in terms of the structure of events. The ultimate ground of the Adverb-Out rule lies in the distinction between event occurrence and the way it occurs. Adverbs, according to the Davidsonian view, describe the ways in which an event occurs. Two different events can occur in the same way and thereby allow the same adverb. For example, two different events, e1 and e2, occur on the same day. How to describe the way an event occurs does not affect the content of the event and vice versa. It is important to notice that we are not simply talking about the distinction between event occurrence and the way it occurs but interdependence of how to describe them. For suppose that the descriptive content of e1 is affected by how to describe the way it occurs. That is, the content of e1 would be different if it is attached by the description of the way it occurs. Then, the Adverb-Out rule fails.

7

How about counterexamples of Adverb-Out rule? Following the Davidsonian account one might attempt to explain them by arguing that these cases represent the cases where it is not events that are modified by adverbs. In (8), for example, it is not event itself that is probable.

Rather it is the belief that Jones buttered the toast. However, the question still remains: if an adverb does not modify events in the counterexamples of Adverb-Out rule, what does it? Is there any systematic account that explains all the counterexamples? If one takes the counterexamples as applying to non-event entities, it seems that the very idea underlying the Davidsonian account, which is that adverbs prompt introduction of events as semantic entities, shall be undermined.

It is noteworthy that Davidson does not claim that Adverb-Out rule is the sole indicator of event-structure of action sentences. He mentions the adverbs 'slowly' and 'deliberately'... It seems that a sentence with these adverbs entails one without them. For example, 'Jones buttered the toast slowly deliberately' entails 'Jones buttered the toast'. He says, however, 'we cannot treat 'deliberately' on a par with' other modifying adverbial clauses since it 'imputes intention'. And "slowly', unlike the other adverbial clauses, fails to introduce a new entity (a place, an instrument, a time), and also involve a special difficulty.' (Davidson 1967: 106). What is the common feature of these two adverbs, which keeps them from being treated on a par with other adverbial expressions, even though each is subject to Adverb-Out rule at least at the level of superficial grammar? Davidson does not answer this question explicitly. However, I suggest, the distinction Davidson would endorse is two distinct uses of adverbial expressions:

semantically innocent use and *semantically imbued use.*

One uses an adverb in the semantically innocent way only if s/he believes the adverb modifies what it tries to modify, i.e. an event, regardless of which way the event is described. This is based upon the idea that event occurrence and the way it occurs are independent from each other. Adverbial expressions describing time and place are typically used this way. Suppose e1 occurs at a specific time t1 and in a specific place p1. From this it follows that e1 occurs and that the occurrence of e1 is at t1 and in p1. Moreover, attributing t1 and p1 to this event is legitimate no matter how it is described. That is, if e2 is identical to e1 (i.e. the event under the description e1 is described under the description e2), e2 occurs at t1 and in p1. The Davidsonian account of Adverb-Out rule regards semantically innocent use of adverbs as central to this rule. For, according to this account, Adverb-Out rule is logically equivalent to And-Out rule and, in applying the latter, it is not required that the content of each conjunct is semantically interdependent.

If an adverb is not used in the semantically innocent way, it is used in the semantically imbued way. A certain event occurs and it is described as 'Susan crossed the channel in fifteen hours'. One might add to this sentence the adverbial expression 'slowly' since she believes this crossing is slow. If this event is described as 'Susan swam the channel in fifteen hours', however, one refuses to apply

'slowly'. In this case 'slowly' is semantically imbued since its adequacy depends upon the way in which an event is described. Consider another event under the description 'Jack triggered the gun'. Jack agrees that the adverbial expression 'intentionally' can be added to this sentence. And yet, if the event is described as 'Jack shot the victim', he refuses to add the same adverb since he does not know that the gun is loaded. (Davidson 1967: 109). From these considerations, I propose the following two criteria for semantically innocent use of adverbs:

[Criterion 1]
From a true sentence with an adverb it is entailed that there is an event e1 which is adequately modified by the adjective derived from the adverb.

[Criterion 2]
(i) [Criterion 1] is met, and (ii) if e1 is identical e2, e2 is also adequately modified by the adjective derived from the adverb.

An adverbial expression is used in the semantically imbued way if either of criteria is not met. The adverbial expressions such as 'slowly' and 'intentionally' fail [Criterion 2] for the reasons given above. The adverbial expressions such as 'wisely' and 'optimistically' fail both. For the adjectives 'wise' and 'optimistic' do not modify events: they

are typically attributed to a person.

8

If my proposal is correct, I argue, the range of adverbs that Davidson would refuse to apply his event-based analysis gets wider than he thinks. For consider the following situation: a rope whose both ends are colored in red and white respectively is linked to a pulley. When one pulls down its white end, the following sentence is true:

(12) The red end of the rope is moving up.

The adverbial expression 'up' modifies the event under the description 'the red end of the rope is moving.' And this event is the same event described as 'the white end of the rope is moving'. But the following sentence is not true:

(13) The white end of the rope is moving up.

Thus, 'up' fails [Criterion 2] and thus is semantically imbued. And one can enlarge the range of adverbs of this kind. The prepositional clause 'to the ceiling', for example, fails for the same reason. However, Davidson applies his event-based analysis to prepositional clauses such as 'to the Morning Star'. (Davidson 1967: 117-119).

9

So, what is wrong with the gentle murder paradox? If the observations so far are correct, the adverbial expression 'gently' is used in the semantically imbued way. Then, Davidson would refuse to apply his event-based analysis to it, even though Adverb-Out rule is apparently applicable to it. (Goble 1991: 219). In other words, 'Cain murders Abel gently' should not be read as 'there is such-and-such event and it is gentle'. Sinnott-Armstrong's argument is based upon this reading. Thus, the problem of this paradox does not lie in scope ambiguity of the operator 'O'. The problem lies in that 'gently' is semantically imbued. Suppose someone watches Cain murder Abel. If she mistakenly believes that Cain is dancing with Abel, she might be willing to attribute the adjective 'gentle' to this event. However, if she knows that what Cain does is murdering Abel, she would refuse to modify the event by 'gentle'. Since 'gently' is semantically imbued, even though Adverb-Out rule applies to the sentence 'Cain murders Abel gently', the sentence should not be treated on a par with other semantically innocent adverbs. The Davidsonian account should refuse to accept (3) as a premise. (3) should be read as follows: if there is an event that Cain murders Abel, the way this event takes place ought to be gentle *insofar as this event is described as a murder.*. However, if

this event is described as a murder, one does not have to attribute gentleness to this event. One might admit that there can be a certain description of the event under which the way the event takes place ought to be gentle. However, this description does not have to be the very description. To deontic logics the gentle murder paradox poses a problem of how to deal with conditional obligations. Despite many proposals, I believe, there is a fundamental problem that deontic logical apparatus is not adequate enough to accommodate subtle entailment relations. (Aqvist 1984, Bonevac 1998). The Davidsonian account of adverbs shows one example: the deontic operator O fails to appreciate two different uses of adverbial expressions.

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