An Ascription-Based Theory of Illocutionary Acts

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1 Introduction

My long-term ambition is to develop a philosophically sound and mathematically rigorous theory of illocutionary acts that provides an empirically adequate treatment of speech act phenomena both in English and in Japanese. In this paper, I shall present basic ideas of, and arguments for, a theory of illocutionary acts which has three important features.[1]

Firstly, it is "ascription-based" in the sense that its basic formulas are formulas ascribing actions to agents. They are used in order to state facts about particular utterances and illocutionary acts performed by agents. The language of the theory also contains formulas used for stating constraints upon possible combinations of types of contexts, types of utterances, types of possiblle illocutionary acts, and types of background conditions. It doesn't contain, however, formulas for giving commands, making promises, making requests, and so on. It is not meant to be an all-purpose language in which all sorts of illocutionary acts could be performed, but is meant to be a special-purpose language for stating various theoretical assumptions, hypotheses and their consequences about speech acts performed in natural languages.

Secondly, it enables us to avoid assuming propositions (qua truth value bearers) to be the common contents of statements, commands, promises, and so on. It contains a general theory of content for illocutionary acts which is based on a generalized version of J. L. Austin's theory of Truth. By extending Austin's notions of demonstrative and descriptive conventions so as to cover cases not only of assertives but also of illocutionary acts other than assertives, it specifies contents of contentful illocutionary acts through specifying conditions of their satisfaction without appealing to the notion of propositions. It respects the intuition that commands and promises are not things which can be true or false.

And lastly, it treats illocutionary acts as acts, i.e. that which change situations. It aims to characterize each illocutionary force in terms of types of changes in types of situations which illocutionary acts with those forces bring about. Analysis of this kind would be needed if we are to view speech acts in the context of a general theory of action.

I shall adopt a version of the language of Situation Theory as the language in which a precise formulation is to be given to a theory with the features above. I shall also try to show how Searle and Vanderveken's theoretical insights could be incorporated and utilized in such a theory.

2 Some Situation Theory

The version of the language I shall use in this paper is the language introduced and explaind in Devlin(1991). In this section, I will give a brief summary of the concepts and the devices on which our discussion in subsequent sections

depends. Though I will usually reproduce Devlin's definitions and explanations fairly faithfully in what follows, my notation is slightly different from Devlin's. (For example, I use "$\langle\!\langle$" and "$\rangle\!\rangle$" where Devlin uses "$\ll$" and "$\gg$".)

Situations and Infons

Basic formulas of this language have the following form:

(1) $s \models \sigma$

The "s" here stands for a particular situation and the "σ" for a particular "infon". We take situations to be parts of the world, and infons to be items of information. The formula (1) as a whole says that the situation s supports the infon σ. We say that σ is a fact of s if s supports σ.

We also have formulas of the following form:

(2) $w \models \sigma$

The "w" here stands for the world. We say that σ is a fact if w supports σ. Though we assume the world to be what supports all the facts, we do not take the world itself to be a situation.[2]

If I is a set of infons and s is a situation (or is the world w), we write

(3) $s \models I$

if $s \models \sigma$ for every infon σ in I.

We assume that infons have the following form:

(4) $\langle\!\langle P, a_1, \ldots, a_n, i \rangle\!\rangle$

where P is an n-place relation (for some n), $a_1, \ldots, a_n$ are objects appropriate for the respective argument places of P, and i is equal to 0 or 1. I shall write

(5) $\langle\!\langle P, a_1, \ldots, a_n, 1 \rangle\!\rangle$

to denote the infon that $a_1, \ldots, a_n$ stand in the relation P, and

(6) $\langle\!\langle P, a_1, \ldots, a_n, 0 \rangle\!\rangle$

to denote the infon that $a_1, \ldots, a_n$ do not stand in the relation P. For example, the infon that there is smoke at the location l at the time t is denoted by

(7) $\langle\!\langle SMOKE-PRESENT, l, t, 1 \rangle\!\rangle$

and the infon that there is a fire at the location l at the time t is denoted by

(8) $\langle\!\langle FIRE-PRESENT, l, t, 1 \rangle\!\rangle$

Parameters and Anchors

The ontology of our theory involves objects of various types. For example, according to Devlin(1991: 52), we have objects of the following *basic types*:

TIM : the type of a temporal location;
LOC : the type of a spatial location;
IND : the type of an individual;
REL^n : the type of an n-place relation;
SIT : the type of a situation;
INF : the type of an infon;
TYP : the type of a type;
PAR : the type of a parameter;
POL : the type of a polarity (i.e. the values 0 and 1).

Note that we have objects of type PAR, called parameters, in our ontology. They enable us to talk about arbitrary objects of given types, and thus play a special role in our theory.

For each basic type T other than PAR, Devlin(1991: 52) introduces an infinite collection $T_1, T_2, T_3, \ldots$ of basic parameters for objects of type T. For example, IND_3 is a parameter for an object of type *IND*, and SIT_{56} is a parameter for an object of type *SIT*. The parameters T_i are themselves said to be of type T. As we only need basic parameters for objects of each of the types TIM, LOC, IND, and SIT in this paper, I will ignore parameters for the other basic types henceforce.

Following Devlin(1991: 52), I shall use the notation $\dot{l}, \dot{t}, \dot{a}, \dot{s}$, etc. to denote parameters. (The symbols "$\dot{l}$", "$\dot{t}$", "$\dot{a}$", and "$\dot{s}$" denote parameters of type LOC, TIM, IND, and SIT, respectively.)

For any of the basic types TIM, LOC, IND, and SIT, we allow a parameter for an object of type T to appear wherever an object of type T may itself appear. This modifies our previous assumption about infons, and thus infons may involve parameters now. For example, the infon

(9) $\langle\langle SMOKE-PRESENT, \dot{l}, \dot{t}, 1\rangle\rangle$

involves two parameters, $\dot{l}$ and $\dot{t}$.

The occurrences of the parameters $\dot{l}$ and $\dot{t}$ here are examples of free occurrences. Infons having one or more free occurrences of one or more parameters are called parametric infons, and infons that have no free parameters are called parameter-free. (Besides free occurrences, we have "bound" occurrences of parameters. Although parameters are not variables of our language, the analogy with free and bound (occurrences of) variables in predicate logic will be of considerable help in recognizing free and bound (occurrences of) parameters.)

Since the above infon (9) does not involve an actual location or an actual time, it is not enough to provide us with information about the world. But each free parameter can be anchored to an actual object by some "anchor". Formally, an anchor for a set, A, of basic parameters is a function defined on A, which assigns to each parameter v in A an object of the same basic type as v. If σ is a parametric infon and f is an anchor for some or all of the parameters that occur free in σ, we denote, following Devlin(1991: 54–5), by

(10) $\sigma[f]$

the infon that results from replacing each v in the domain of f that occurs free in σ by its image $f(v)$. For example, if f is an anchor for $\dot{l}$ and $\dot{t}$, and

(11) $\sigma = \langle\langle SMOKE - PRESENT, \dot{l}, \dot{t}, 1\rangle\rangle$

then

(12) $\sigma[f] = \langle\langle SMOKE - PRESENT, f(\dot{l}), f(\dot{t}), 1\rangle\rangle$

Since $\sigma[f]$ here is parameter-free, it will supply us the information that there is smoke at the location $f(\dot{l})$ at the time $f(\dot{t})$, if $s \models \sigma[f]$ for some situation s.

If I is a set of parametric infons and f is an anchor for some or all of the parameters that occur free in infons in I, we define

(13) $I[f] = \{\sigma[f] \mid \sigma \in I\}$

Restricted Parameters

Parametric infons can be used to impose conditions on parameters. Let v be any basic parameter of type LOC, TIM, IND, or SIT. By a *condition* on v we mean any finite set of (parametric) infons. (At least one of the infons should involve v, otherwise the result would be degenerate.)

Given such a basic parameter, v, and a condition, C, on v, we define, following Devlin(1991:55), a new (complex) parameter, $v \upharpoonright C$, called a *restricted parameter*. (In the case where C consists of a single parametric infon, σ, we write $v \upharpoonright \sigma$ instead of $v \upharpoonright \{\sigma\}$ if there is no danger of confusion.) We will use $v \upharpoonright C$ to talk about an arbitrary object of the same basic type as v, that satisfies the requirements imposed by C.

Imposing a condition on a parameter amounts to putting a requirement on anchors. Let $\dot{r} = v \upharpoonright C$ be a parameter, and let s be a situation. According to Devlin(1991: 55), a function, f, is said to be an *anchor* for $\dot{r}$ in s if:

(i) f is an anchor for v and for every parameter that occurs free in C;
(ii) for each infon σ in C: $s \models \sigma[f]$;
(iii) $f(\dot{r}) = f(v)$.

For example, consider the parameter:

(14) $\dot{r}_1 = IND_1 \upharpoonright \langle\langle SPEAKING, IND_1, LOC_1, TIM_1, 1\rangle\rangle$

Suppose f is an anchor for $\dot{r}_1$ in some situation s_1. Then by (i), $f(IND_1) = a$, $f(LOC_1) = l$ and $f(TIM_1) = t$ are defined, and by (iii), $f(\dot{r}_1) = a$. Moreover, by (ii) we have

(15) $s_1 \models \langle\langle SPEAKING, a, l, t, 1\rangle\rangle$

Thus $\dot{r}_1$ can only be anchored to an object of type IND which is speaking at some place at some time in some situation, and so can be used as a special parameter for a speaking individual.

Situation-Types and Constraints

Another class of formulas important for our discussion are the formulas saying of some particular situation that it is of a certain type. If s is a situation and T is a situation-type, we use the formula

(16) $s : T$

to state that situation s is of type T.

Situation-types are acquired through situation-type-abstraction. If $\dot{s}$ is a parameter for an object of type SIT and I is a set of infons, then there is a corresponding situation-type

(17) $[\dot{s} \mid \dot{s} \models I]$

This is the *type* of situation in which the conditions in I obtain. (In the case where I consists of a single infon, σ, we write $[\dot{s} \mid \dot{s} \models \sigma]$ instead of $[\dot{s} \mid \dot{s} \models \{\sigma\}]$ if there is no danger of confusion.)

For example, let S_0 be the following situation-type:

(18) $[SIT_2 \mid SIT_2 \models \langle\langle SMOKE - PRESENT, \dot{l}, \dot{t}, 1\rangle\rangle]$

This is the type of situation in which there is smoke at some location at some time. It is an example of what is called a *parametric type* and we have here two free parameters, $\dot{l}$ and $\dot{t}$. (But what about the parameter SIT_2? It is the "abstraction parameter" used in the above type-abstraction, and it disappears when the type S_0 is formed. Thus we have an example of a bound occurrence of a parameter here.)

Again, let S_1 be the following situation-type:

(19) $[SIT_3 \mid SIT_3 \models \langle\langle FIRE - PRESENT, \dot{l}, \dot{t}, 1\rangle\rangle]$

This is the type of situation in which there is a fire at some location at some time.

If T is a parametric type and f is an anchor for some or all of the parameters that occur free in T, we denote, following Devlin(1991: 62), by $T[f]$ the type that results from replacing each parameter v in the domain of f that occur free in T by its image $f(v)$. For example, consider the situation type S_0 above. If f is an anchor for $\dot{l}$ and $\dot{t}$, then we have

(20) $S_0[f] = [SIT_2 | SIT_2 \models \langle\langle SMOKE - PRESENT, f(\dot{l}), f(\dot{t}), 1\rangle\rangle]$

Our two classes of formulas, those of the form (1) and those of the form (16), are closely related. Let s be a situation. If σ is a parameter-free infon, we have

(21) $s : [\dot{s} \mid \dot{s} \models \sigma]$ iff $s \models \sigma$

and if I is a finite set of parameter-free infons, we have

(22) $s : [\dot{s} \mid \dot{s} \models I]$ iff $s \models I$

If σ is a parametric infon, and f is an anchor for all of the free parameters in σ, we have

(23) $s : [\dot{s} \mid \dot{s} \models \sigma][f]$ iff $s \models \sigma[f]$

and if I is a set of parametric infons, and f is an anchor for all of the free parameters in infons in I, we have

(24) $s : [\dot{s} \mid \dot{s} \models I][f]$ iff $s \models I[f]$

Situation-types can be used to capture a class of relations which are of great importance to the theory of information, i.e. relations called constraints. Consider, for example, the regular relation between smoke and fire. If there is a situation where there is smoke, then there is a situation where there is a fire. This relation is an example of a constraint, and will be denoted by the expression

(25) $S_0 \Rightarrow S_1$

where S_0 and S_1 are the situation-types specified above. This is read as S_0 *involves* S_1, and represents a fact:

(26) $\langle\langle INVOLVES, S_0, S_1, 1\rangle\rangle$

Some sitations will carry information relative to this constraint. Suppose that f is an anchor for the parameters in S_0 and S_1, and that s_0 is of type $S_0[f]$. Then the constraint in question enables us to infer that there is a situation, say s_1, which is of type $S_1[f]$. Though s_1 can be numerically identical with s_0, they can be different from each other. And even if they are different, s_0 carries information about s_1 along this constraint.

Some constraints operate in a slightly different manner from this. For example, consider the constraint denoted by the expression

(27) $S_2 \Rightarrow S_3$

where

(28) $S_2 = [\dot{s} \mid \dot{s} \models \langle\langle KISSING, \dot{a}, \dot{b}, \dot{l}, \dot{t}, 1\rangle\rangle]$

and

(29) $S_3 = [\dot{s} \mid \dot{s} \models \langle\langle TOUCHING, \dot{a}, \dot{b}, \dot{l}, \dot{t}, 1\rangle\rangle]$

As Devlin(1991:92) points out, "if s is a situation in which (say) Bob is kissing Carol, then in *that very same* situation, s, Bob is touching Carol." Thus, if s is of type $S_2[g]$ for some anchor g, s is also of type $S_3[g]$. This constraint is an

example of what Devlin calls a reflexive constraint. It provides more information about the same situation.

This concludes the summary of the minimal part of situation theory we need in this paper. Equipped with the concepts and the devices introduced here, let us turn to the theory of illocutionary acts.

3 Illocutionary Commitment

As I have said in the introduction, the theory I have been trying to work out is a theory that treats illocutionary acts as acts. Situation theory seems to provide us with a fairly good framework in which such a theory might be developed. For example, one of the important findings of Searle and Vanderveken, i.e. illocutionary commitments, can be considered as examples of constraint.

According to Vanderveken,

> An illocutionary act $F_1(P_1)$ can *strongly commit* the speaker to another speech act $F_2(P_2)$:
>
> first, because its illocutionary force F_1 is stronger than the force F_2;
>
> second, because its propositional content P_1 strongly implies the propositional content P_2; or
>
> third, because of both reasons. (Vanderveken 1990: 164)

As an example of illocutionary commitment, consider the relation between telling in the assertive sense and asserting. As telling that p strongly commits the speaker to asserting that p, we have:

(30) $S_{TTP} \Rightarrow S_{ATP}$

where S_{TTP} is the type of situation in which someone tells some other person that p, and S_{ATP} is the type of situation in which that person asserts that p.

In order to be able to specify these situation-types more exactly, we need to have a general theory of content for illocutionary acts. What I am going to present in this paper presently is a set of basic ideas which, I hope, can be developed into such a theory.

4 Conventional Effects

Before discussing the theory of content, let me suggest another possible application of the notion of constraint.

As I have suggested in the introduction, I believe that it must be possible to characterize illocutionary forces in terms of changes which illocutionary acts with those forces bring about. Such a characterization will enable us to view illocutionary acts in the context of some general theory of action.

In order to do so, however, we need to distinguish carefully the conventional effects of illocutionary acts from possible consequences of those acts. Otherwise, we might end up blurring the distinction between illocutionary acts and perlocutionary acts. Devlin's treatment of directives seems to be in danger of

doing this. According to Devlin (1991: 248), "the meaning of a directive is that link which, for a given utterance of the directive, connects the utterance with its compliance (in the sense of forming the intention to do as instructed)." But the act of getting someone to form an intention to do so and so by saying to him or her "Do so and so" is not an illocutionary act but a perlocutionary act. Suppose, for example, a commander has ordered his men to do so and so. They might refuse to obey the order. But even if they refuse to obey it, that will not make the order void. Their refusal would not constitute disobedience if it made the order void. Therefore the order can be effective in a sense even if the commander has failed to get them to form the intention to do as ordered. It has changed the circumstance in such a way that in the changed circumstance their not doing so and so would constitute disobedience unless it is withdrawn.

A similar distinction is also important for commisives. For example, suppose a friend of mine has just said to me, "I will assume the payment of your debt." I believe that he intends to assume the payment because I also believe that he has promised me that he would do so. Moreover, I am entitled to rely on him to do so, if he has really promised me that he would do so. But has he really thereby promised me that he would do so? Though we can easily imagine a story in which he has, we can also imagine an alternative story in which he hasn't. Perhaps he cannot make such a promise without the approval of his guardian. In the latter story, I would not be entitled to rely on him to assume the payment of my debt unless he receives his guardian's approval. I would like to emphasize the importance of the distinctions of this kind in view of the fact that there are theories of *rational interaction* which claim to be strong enough to treat communication, and to derive "effects" of illocutionary acts without recognizing illocutionary acts.[3]

Though the exact specification of conventional effects of illocutionary acts are beyond the scope of this paper, I would like to note that what Vanderveken calls conditions of success of an illocutionary act seem to be of central importance to our notion of conventional effect. According to Vanderveken (1991: 26f), they are "the conditions that must obtain in a possible context of utterance in order that the speaker succeed in performing that act in that context." For example, "a condition of success of a promise is that the speaker commits himself to carrying out a future course of action in the world of the utterance." This commitment seems to involve entitling the hearer to rely on the speaker to carry out that future course of action.

The relation between illocutionary acts and their conventional effects, I hope, can be formulated as conventional constraints. For example, if S_{PDA} is the type of situation in which some person $\dot{p}_a$ promises some other person $\dot{p}_b$ to do A, and S_{ERDA} is the type of situation in which $\dot{p}_b$ is entitled to rely on $\dot{p}_a$ to do A, we will have

(31) $S_{PDA} \Rightarrow S_{ERDA}$

The tools introduced in Devlin(1991) seem to be useful for specifying such a constraint, though more will turn out to be needed when we begin to study conventional effects more closely.[4]

5 An Austinian Theory of Content

Let us consider one concrete example, in order to illustrate basic ideas of an Austinian theory of content. Suppose there was a small meeting of philosophers at CSLI in November 1990 and imagine two conversations, one before the meeting, and the other after the meeting. Suppose in the first conversation, a Japanese philosopher, Syun Tutiya, (ST, hereafter), gave advice to me, Tomoyuki Yamada, (TY, hereafter), by uttering the sentence

(Φ) Don't make a joke in the meeting.

Suppose TY followed this advice. Though ST was not present at the meeting, his friend, John Perry (JP, hereafter) was present at the meeting. In the second conversation, JP told ST that TY had not made a joke in the meeting by uttering the sentence

(Ψ) Tomoyuki didn't make a joke in the meeting.

I would like to examine JP's remark in the second conversation first. As it is supposed to be true in our example, we have

(32) $m \models \langle\langle JOKING, TY, t_m, 0\rangle\rangle$

where m is the meeting situation and t_m is the temporal location of the meeting. It says that the situation m supports the infon that TY and t_m do not stand in the relation called $JOKING$.[5]

Though (32) is based on JP's remark, we need to note that the sentence used to make this remark, Ψ, can be used to make similar remarks on various meetings and various persons named "Tomoyuki". What is common to these various remarks can be captured (at least partly) by the following situation-type:

(33) $AT_\Psi = [\dot{s} \mid \dot{s} \models \langle\langle JOKING,$
$\dot{p}_j \upharpoonright \langle\langle NAMED, \dot{p}_j, \text{"Tomoyuki"}, 1, \rangle\rangle,$
$\dot{t}_j \upharpoonright \{ \langle\langle PRECEDES, \dot{t}_j, \dot{t}_u, 1\rangle\rangle,$
$\langle\langle TEMP, \dot{t}_j,$
$\dot{m} \upharpoonright \langle\langle MEETING, \dot{m}, 1\rangle\rangle, 1\rangle\rangle \}, 0\rangle\rangle]$

where the infon $\langle\langle TEMP, \dot{t}, \dot{e}, 1\rangle\rangle$ denotes the infon that $\dot{t}$ is the temporary location of an event $\dot{e}$. The parameter $\dot{p}_j$ here is a restricted parameter. It can only be anchored to a person who is named Tomoyuki. The parameter $\dot{t}_j$ here is also a restricted parameter, and is restricted by two conditions. It can only be anchored to a temporal location which not only temporally precedes the temporal location of an utterance of the sentence Ψ to which the parameter $\dot{t}_u$ is anchored, but also is the temporal location of a meeting to which the parameter $\dot{m}$ is anchored. As the meaning of the sentence Ψ seems to require these conditions to hold in all remarks made by uttering Ψ, I take AT_Ψ to be the situation-type associated with sentence Ψ by the meaning of Ψ (the Associated Type of Ψ, for short).[6]

Note that, for some anchor f, we have

(34) $m : AT_\Psi[f]$

where $f(\dot{p}_j) = TY$, $f(\dot{t}_j) = t_m$, $f(\dot{m}) = m$, and $f(\dot{t}_u)$ is the temporal location of the utterance. According to J. L. Austin's theory of truth, (34) means that JP's remark is true.

> If there is to be communication of the sort that we achieve by language at all, $\cdots$ there must be two sets of conventions:
>
> *Descriptive* convention correlating the words (= sentences) with the types of situation, thing, event, &c., to be found in the world.
>
> *Demonstrative* conventions correlating the words (= statements) with the *historic* situations, &c., to be found in the world.
>
> A statement is said to be true when the historic state of affairs to which it is correlated by the demonstrative conventions (the one to which it 'refers') is of a type with which the sentence used in making it is correlated by the descriptive conventions.
>
> (Austin 1950: 121–2)

Barwise and Etchemendy (1987: 28–29) have introduced the notion of Austinian proposition based on this account of truth. An Austinian proposition is a proposition claiming that a particular situation is of a particular type. The situation a proposition p is about is called the described situation of p, and is denoted by $About(p)$. The type associated with the sentence by the descriptive conventions is denoted by $Type(p)$. Since a general theory of content for illocutionary acts is concerned not only with those illocutionary acts which are true or false, but also with those illocutionary acts about which the question of truth will not arise, we cannot simply identify contents of illocutionary acts with propositions understood as the bearers of truth values. So I suggest taking described situations to be situations illocutionary acts are about, and the relevant types to be constituents of illocutionary acts.

This suggestion amounts to an extension of Austin's acount of truth. By extending Austin's notions of demonstrative conventions and descriptive conventions, it is possible to state general conditions of satisfaction for various kinds of illocutionary acts.[7]

As a first approximation, we can say that an illocutionary act i is satisfied iff the situation to which it is correlated by the demonstrative conventions is of a type with which the sentence used in making it is correlated by the descriptive conventions. The situation to which an illocutionary act i is correlated by the demonstrative conventions shall be called the described situation of i and denoted by $About(i)$, and the type with which the sentence used is correlated by the descriptive conventions shall be called the descriptive type of i and denoted by $Type(i)$. Then i is satisfied iff $About(i)$ is of type $Type(i)$.[8]

But what is this i here? In order to answer this question, we need to look more closely at our example. Let s_t be the situation in which JP's above remark is made. Then we have

(35) $s_t \models \sigma_t$

where

$$(36)\quad \sigma_t = \langle\!\langle TELLING, JP, ST, m, AT_\Psi[f], t_t, 1\rangle\!\rangle$$

$$(37)\quad AT_\Psi = [\dot{s} \mid \dot{s} \models \langle\!\langle JOKING, \dot{p}_j \upharpoonright \langle\!\langle NAMED, \dot{p}_j, \text{“Tomoyuki”}, 1, \rangle\!\rangle, \dot{t}_j \upharpoonright \{\langle\!\langle PRECEDES, \dot{t}_j, \dot{t}_u, 1\rangle\!\rangle, \langle\!\langle TEMP, \dot{t}_j, \dot{m} \upharpoonright \langle\!\langle MEETING, \dot{m}, 1\rangle\!\rangle, 1\rangle\!\rangle\}, 0\rangle\!\rangle]$$

$$(38)\quad f(\dot{p}_j) = TY$$

$$(39)\quad f(\dot{t}_j) = t_m$$

$$(40)\quad f(\dot{m}) = m$$

and

$$(41)\quad f(\dot{t}_u) = t_t$$

where t_t is the temporal location of the act of telling. (35) says that in s_t, JP tells ST at temporal location t_t that m is of type $AT_\Psi[f]$.

Similarly, let s_a be the situation in which ST's advice is given. Then, for some anchor g, we have

$$(42)\quad s_a \models \sigma_a$$

where

$$(43)\quad \sigma_a = \langle\!\langle ADVISING, ST, TY, m, AT_\Phi[g], t_a, 1\rangle\!\rangle$$

$$(44)\quad AT_\Phi = [\dot{s} \mid \dot{s} \models \langle\!\langle JOKING, \dot{p}_j \upharpoonright \langle\!\langle ADDRESSING, \dot{agent}, \dot{p}_j, \dot{t}_u, 1, \rangle\!\rangle, \dot{t}_j \upharpoonright \{\langle\!\langle PRECEDES, \dot{t}_u, \dot{t}_j, 1\rangle\!\rangle, \langle\!\langle TEMP, \dot{t}_j, \dot{m} \upharpoonright \langle\!\langle MEETING, \dot{m}, 1\rangle\!\rangle, 1\rangle\!\rangle\}, 0\rangle\!\rangle]$$

$$(45)\quad g(\dot{agent}) = ST$$

$$(46)\quad g(\dot{p}_j) = TY$$

$$(47)\quad g(\dot{t}_j) = t_m$$

$$(48)\quad g(\dot{m}) = m$$

and

$$(49)\quad g(\dot{t}_u) = t_a$$

where t_a is the temporal location of the act of advising.

AT_Φ is slightly different from AT_Ψ before. The parameter $\dot{p}_j$ here can only be anchored to an addresee in some utterance situation of the sentence Φ, and the parameter $\dot{t}_j$ here can only be anchored to a temporal location which is temporally preceded by the temporal location of the utterance to which the

parameter $\dot{t}_u$ is anchored. Though $g(\dot{p}_j)$ is identical with TY in our example, it is because TY is the addressee of the first conversation we are considering.

(42) says that in s_a, ST advises TY at time t_a to make m of type $AT_\Phi[g]$. Just as JP's remark is true iff m is of type $AT_\Psi[f]$, ST's advice is followed iff m is of type $AT_\Phi[g]$ and TY brings it about that m is of type $AT_\Phi[g]$ in order to follow ST's advice.

This observation suggests that the use of the phrase "is satisfied" in the previous general account is that of a dummy place holder. Consider the following list:

An assertion a *is true* iff $About(a)$ is of type $Type(a)$.
A promise p *is kept* iff $About(p)$ is of type $Type(p)$ and the speaker brings it about that $About(p)$ is of type $type(p)$ in order to keep p.
A command c *is obeyed* iff $About(c)$ is of type $Type(c)$ and the addressee brings it about that $About(c)$ is of type $Type(c)$ in order to obey c.
...

Each of these illocutionary acts seems to have its own mode of satisfaction determined by its illocutionary force.[9] With what objects can we identify a, p, and c here? My suggestion is that they should be identified with illocutionary acts themselves.

But what kind of objects can illocutionary acts be in our theory? Have we already seen them in our two examples? The answer seems to be in the affirmative. Just as events like meetings or football games can be considered as situations, so acts can also be considered as situations. In our two examples, we have two situations, s_a and s_t. The act of advising in our first conversation can be identified with s_a, or the smallest part of it that supports the infon σ_a. The act of telling in the second conversation can be identified with s_t, or the smallest part of it that supports the infon σ_t.

The infon σ_t tells us that $About(s_t)$ is the situation m, and $Type(s_t)$ is the situation type $AT_\Psi[f]$. Therefore s_t is true iff $m : AT_\Psi[f]$. The infon σ_a tells us that $About(s_a)$ also is m, and $Type(s_a)$ is $AT_\Phi[g]$. Therefore s_a is followed iff $m : AT_\Phi[g]$ and m is made of type $AT_\Phi[g]$ by TY in order to follow it. $Type(s_t)$ and $Type(s_a)$ are the anchored versions of the associated types of the sentences Ψ and Φ respectively.

Note that the two illocutionary acts above, namely s_t and s_a, are supposed to be the sort of things that are satisfiable. It means that they are supposed to have contents. As states like beliefs and desires are satisfiable, I find it not particularly problematic to suppose that events like illocutionary acts are satisfiable. As the property of being about m and the property of being true iff m is of type AT_Ψ are properties of JP's remark, I take them to be properties of s_t. As the property of being about m and the property of being followed iff m is of type AT_Φ and TY brings it about that m is of type AT_Φ in order to follow it are properties of ST's advice, I take them to be properties of s_a.

6 Meaning as Constraint

All the discussions in the previous section are based on our intuitive understanding of the meaning of the two sentences, Φ and Ψ. In order to make things a bit

more systematic, we need to consider the relation between types of utterances and types of illocutionary acts. Let IA be the type of situation in which a particular sort of illocutionary act is performed and U be the type of situation in which a particular sentence is uttered. If an illocutionary act of the type mentioned in defining IA can be performed by uttering the sentence mentioned in defining U, the following constraint might be expected to hold:

(50) $U \Rightarrow IA$

But such a constraint will not hold unconditionally. As Austin (1955: 14ff) has pointed out, even if serious utterances are made, illocutionary acts can be void in various ways. For example, if I am to bequeath you a particular house, I must be the owner of it. If I am to call you out in a baseball game, I must be one of the umpires of the game.

This means that we have to consider conditional constraints of the form

(51) $[U \Rightarrow IA] \,/\, B$

instead. B here denote a set of backgroud conditions, and (51) as a whole denotes the constraint to the effect that U involves IA given that B.[10]

In order to examine how meanings put constraints upon possible illocutionary acts, however, it is possible to ignore background conditions by taking them for granted. I shall consider two constraints relating to our previous examples.

Let me consider first the following constraint:

(52) $U_\Psi \Rightarrow TELL_\Psi$

where

$$
\begin{aligned}
(53)\qquad U_\Psi \;=\; [\dot{s} \mid \dot{s} \models \{&\langle\!\langle ADDRESSING, \grave{a}gent, \grave{a}ddressee, \dot{t}_u, 1\rangle\!\rangle,\\
&\langle\!\langle UTTERRING, \grave{a}gent, \Psi, \dot{t}_u, 1\rangle\!\rangle,\\
&\langle\!\langle REFERRING, \grave{a}gent, \text{“did”}, \dot{t}_j, \dot{t}_u, 1\rangle\!\rangle,\\
&\langle\!\langle EXPLOITING, \grave{a}gent, \text{“Tomoyuki”}, \dot{r}_T, \dot{t}_u, 1\rangle\!\rangle,\\
&\langle\!\langle REFERRING, \grave{a}gent, \text{“Tomoyuki”}, \dot{p}_j, \dot{t}_u, 1\rangle\!\rangle,\\
&\langle\!\langle EXPLOITING, \grave{a}gent, \text{“the meeting”}, \dot{r}_m, \dot{t}_u, 1\rangle\!\rangle,\\
&\langle\!\langle REFERRING, \grave{a}gent, \text{“the meeting”}, \dot{m}, \dot{t}_u, 1\rangle\!\rangle,\\
&\langle\!\langle TALKING-ABOUT, \grave{a}gent, \dot{d}s, \dot{t}_u, 1\rangle\!\rangle\}]
\end{aligned}
$$

(54) Ψ = “Tomoyuki didn't make a joke in the meeting.”

(55) $TELL_\Psi \;=\; [\dot{s} \mid \dot{s} \models \langle\!\langle TELLING, \grave{a}gent, \grave{a}ddressee, \dot{d}s, AT_\Psi, \dot{t}_u, 1\rangle\!\rangle]$

and

$$
\begin{aligned}
(56)\quad AT_\Psi \;=\; [\dot{s} \mid \dot{s} \models \langle\!\langle &JOKING,\\
&\dot{p}_j \upharpoonright (\dot{r}_T \models \langle\!\langle NAMED, \dot{p}_j, \text{“Tomoyuki”}, 1\rangle\!\rangle),\\
&\dot{t}_j \upharpoonright \{\langle\!\langle PRECEDES, \dot{t}_j, \dot{t}_u, 1\rangle\!\rangle,\\
&\quad \langle\!\langle TEMP, \dot{t}_j,\\
&\quad\quad \dot{m} \;\upharpoonright\; \{(\dot{r}_m \upharpoonright \{\langle\!\langle UNIQUE,\\
&\quad\quad\quad\quad \dot{r}_m, MEETING, 1\rangle\!\rangle\}\\
&\quad\quad\quad\quad \models \langle\!\langle MEETING, \dot{m}, 1\rangle\!\rangle)\}, 1\rangle\!\rangle\}, 0\rangle\!\rangle]
\end{aligned}
$$

Note that the situtation-type identified with AT_Ψ here is slightly different from that identified with AT_Ψ before. We have included the uniqueness requirement here.

We can see here how the meanings of expressions used impose complex conditions upon the structure of the utterance situation. The situation-type U_Ψ here contains some person, $\dot{a}gent$, who is addressing some other person, $\dot{a}ddressee$, and talking about some situation, $\dot{d}_s$, at a time, $\dot{t}_u$. The use of "Tomoyuki" requires $\dot{a}gent$ to exploit some resource situation, $\dot{r}_T$, in which someone, $\dot{p}_j$, is named Tomoyuki. It also requires $\dot{a}gent$ to refer to $\dot{p}_j$ by "Tomoyuki." The use of "the meeting" requires $\dot{a}gent$ to exploit another resource situation, $\dot{r}_m$. The use of "the" in "the meeting" requires $\dot{r}_m$ to be in the $UNIQUE$ relation with the property $MEETING$. This means that $\dot{r}_m$ is required to contain only a single exemplar, $\dot{m}$, of the property $MEETING$.[11] The use of "the meeting" also requires $\dot{a}gent$ to refer to $\dot{m}$. The use of "did" and the use of "in the meeting" together require $\dot{a}gent$ to refer to some temporal location, $\dot{t}_j$, which temporally precedes $\dot{t}_u$ and is the temporal location of $\dot{m}$.

Let u_Ψ be the situation in which JP's utterance of Ψ in the second conversation is made. If f is an anchor for all of the free parameters in the constraint (52), and is appropriate for our example, then we have

(57) $u_\Psi : U_\Psi[f]$

and

(58) $s_t : TELL_\Psi[f]$

This means that we have

(59) $u_\Psi \models \langle\langle ADDRESSING, f(\dot{a}gent), f(\dot{a}ddressee), f(\dot{t}_u), 1\rangle\rangle$

(60) $u_\Psi \models \langle\langle UTTERRING, f(\dot{a}gent), \Psi, f(\dot{t}_u), 1\rangle\rangle$

(61) $u_\Psi \models \langle\langle REFERRING, f(\dot{a}gent), \text{“did”}, f(\dot{t}_j), f(\dot{t}_u), 1\rangle\rangle$

(62) $u_\Psi \models \langle\langle EXPLOITING, f(\dot{a}gent), \text{“Tomoyuki”}, f(\dot{r}_T), f(\dot{t}_u), 1\rangle\rangle$

(63) $u_\Psi \models \langle\langle REFERRING, f(\dot{a}gent), \text{“Tomoyuki”}, f(\dot{p}_j), f(\dot{t}_u), 1\rangle\rangle$

(64) $u_\Psi \models \langle\langle EXPLOITING, f(\dot{a}gent), \text{“the meeting”}, f(\dot{r}_m), f(\dot{t}_u), 1\rangle\rangle$

(65) $u_\Psi \models \langle\langle REFERRING, f(\dot{a}gent), \text{“the meeting”}, f(\dot{m}), f(\dot{t}_u), 1\rangle\rangle$

(66) $u_\Psi \models \langle\langle TALKING-ABOUT, f(\dot{a}gent), f(\dot{d}s), f(\dot{t}_u), 1\rangle\rangle$

(67) $s_t \models \langle\langle TELLING, f(\dot{a}gent), f(\dot{a}ddressee), f(\dot{d}s), AT_\Psi[f], f(\dot{t}_u), 1\rangle\rangle$

(68) $f(\dot{r}_T) \models \langle\langle NAMED, f(\dot{p}_j), \text{“Tomoyuki”}, 1\rangle\rangle$

(69) $w \models \langle\langle PRECEDES, f(\dot{t}_j), f(\dot{t}_u), 1\rangle\rangle$

(70) $w \models \langle\langle UNIQUE, f(\dot{r}_m), MEETING, 1\rangle\rangle$

(71) $f(\dot{r}_m) \models \langle\langle MEETING, f(\dot{m}), 1\rangle\rangle$

(72) $w \models \langle\langle TEMP, f(\dot{t}_j), f(\dot{m}), 1\rangle\rangle$

where

$$(73)\quad AT_{\Psi}[f] = [\dot{s} \mid \dot{s} \models \langle\langle JOKING, f(\dot{p}_j), f(\dot{t}_j), 0\rangle\rangle]$$
$$(74)\quad f(\dot{a}gent) = JP$$
$$(75)\quad f(\dot{a}ddressee) = ST$$
$$(76)\quad f(\dot{t}_u) = t_u^2$$
$$(77)\quad f(\dot{t}_j) = t_m$$
$$(78)\quad f(\dot{r}_T) = r_T$$
$$(79)\quad f(\dot{p}_j) = TY$$
$$(80)\quad f(\dot{r}_m) = r_m^2$$
$$(81)\quad f(\dot{m}) = m$$
$$(82)\quad f(\dot{d}s) = m$$

where t_u^2 is the temporal location of JP's utterance, r_T is the resource sitution JP exploited with his use of "Tomoyuki," and r_m^2 is the resource sitution JP exploited with his use of "the meeting."

As JP's remark is true, we also have

$$(83)\quad m : AT_{\Psi}[f]$$

This is equivalent to

$$(84)\quad m \models \langle\langle JOKING, TY, t_m, 0\rangle\rangle$$

Note that the infon that TY is named Tomoyuki, the infon that $f(t_j)$ precedes $f(\dot{t}_u)$, and so on are not required to be facts of m.

Then consider the following constraint:

$$(85)\quad U_{\Phi} \Rightarrow ADV_{\Phi}$$

where

$$\begin{aligned}(86)\quad U_{\Phi} = [\dot{s} \mid \dot{s} \models \{&\langle\langle ADDRESSING, \dot{a}gent, \dot{a}ddressee, \dot{t}_u, 1\rangle\rangle,\\ &\langle\langle UTTERRING, \dot{a}gent, \Phi, \dot{t}_u, 1\rangle\rangle,\\ &\langle\langle REFERRING, \dot{a}gent, \text{“do”}, \dot{t}_j, \dot{t}_u, 1\rangle\rangle,\\ &\langle\langle EXPLOITING, \dot{a}gent, \text{“the meeting”}, \dot{r}_m, \dot{t}_u, 1\rangle\rangle,\\ &\langle\langle REFERRING, \dot{a}gent, \text{“the meeting”}, \dot{m}, \dot{t}_u, 1\rangle\rangle,\\ &\langle\langle TALKING-ABOUT, \dot{a}gent, \dot{d}s, \dot{t}_u, 1\rangle\rangle\}]\end{aligned}$$
$$(87)\quad \Phi = \text{“Don't make a joke in the meeting.”}$$
$$(88)\quad ADV_{\Phi} = [\dot{s} \mid \dot{s} \models \langle\langle ADVISING, \dot{a}gent, \dot{a}ddressee, \dot{d}s, AT_{\Phi}, \dot{t}_u, 1\rangle\rangle]$$

and

$$\begin{aligned}(89)\quad AT_{\Phi} = [\dot{s} \mid \dot{s} \models \langle\langle &JOKING, \dot{a}ddressee,\\ &\dot{t}_j \upharpoonright \{\langle\langle PRECEDES, \dot{t}_u, \dot{t}_j, 1\rangle\rangle,\\ &\quad \langle\langle TEMP, \dot{t}_j,\\ &\quad\quad \dot{m} \upharpoonright \{(\dot{r}_m \upharpoonright \{\langle\langle UNIQUE, \dot{r}_m, MEETING, 1\rangle\rangle\}\\ &\quad\quad\quad \models \langle\langle MEETING, \dot{m}, 1\rangle\rangle)\}, 1\rangle\rangle\}, 0\rangle\rangle]\end{aligned}$$

Note that the situation-type identified with AT_Φ here is also different from that identified with AT_Φ before. We have included the uniqueness requirement here, too, and we have substituted $\dot{a}ddressee$ for

$$\dot{p}_j \upharpoonright \langle\!\langle ADDRESSING, \dot{a}gent, \dot{p}_j, \dot{t}_u, 1, \rangle\!\rangle$$

as we already have an equivalent condition in U_Φ.

Let u_Φ be the situation in which ST's utterance of Φ in the first conversation is made. If g is an anchor for all of the free parameters in the constraint (85), and is appropirate for our example, then we have

(90) $u_\Phi : U_\Phi[g]$

and

(91) $s_a : ADV_\Phi[g]$

This, again, means that we have

(92) $u_\Phi \models \langle\!\langle ADDRESSING, g(\dot{a}gent), g(\dot{a}ddressee), g(\dot{t}_u), 1\rangle\!\rangle$
(93) $u_\Phi \models \langle\!\langle UTTERRING, g(\dot{a}gent), \Phi, g(\dot{t}_u), 1\rangle\!\rangle$
(94) $u_\Phi \models \langle\!\langle REFERRING, g(\dot{a}gent), \text{“do”}, g(\dot{t}_j), g(\dot{t}_u), 1\rangle\!\rangle$
(95) $u_\Phi \models \langle\!\langle EXPLOITING, g(\dot{a}gent), \text{“the meeting”}, g(\dot{r}_m), g(\dot{t}_u), 1\rangle\!\rangle$
(96) $u_\Phi \models \langle\!\langle REFERRING, g(\dot{a}gent), \text{“the meeting”}, g(\dot{m}), g(\dot{t}_u), 1\rangle\!\rangle$
(97) $u_\Phi \models \langle\!\langle TALKING - ABOUT, g(\dot{a}gent), g(\dot{d}s), g(\dot{t}_u), 1\rangle\!\rangle$
(98) $s_a \models \langle\!\langle ADVISING, g(\dot{a}gent), g(\dot{a}ddressee), g(\dot{d}s), AT_\Phi[g], g(\dot{t}_u), 1\rangle\!\rangle$
(99) $w \models \langle\!\langle PRECEDES, g(\dot{t}_u), g(\dot{t}_j), 1\rangle\!\rangle$
(100) $w \models \langle\!\langle UNIQUE, g(\dot{r}_m), MEETING, 1\rangle\!\rangle$
(101) $g(\dot{r}_m) \models \langle\!\langle MEETING, g(\dot{m}), 1\rangle\!\rangle$
(102) $w \models \langle\!\langle TEMP, g(\dot{t}_j), g(\dot{m}), 1\rangle\!\rangle$

where

(103) $AT_\Phi[g] = [\dot{s} \mid \dot{s} \models \langle\!\langle JOKING, g(\dot{a}ddressee), g(\dot{t}_j), 0\rangle\!\rangle]$
(104) $g(\dot{a}gent) = ST$
(105) $g(\dot{a}ddressee) = TY$
(106) $g(\dot{t}_u) = t_u^1$
(107) $g(\dot{t}_j) = t_m$
(108) $g(\dot{r}_m) = r_m^1$
(109) $g(\dot{m}) = m$
(110) $g(\dot{d}s) = m$

where t_u^1 is the temporal location of ST's utterance, and r_m^1 is the resource situation ST exploited with his use of “the meeting.” In our example, r_m^1 can be, though doesn't have to be, identical with r_m^2 above.

As TY followed ST's advice, we also have

(111) $m : AT_{\Phi}[g]$

This is equivalent to

(112) $m \models \langle\langle JOKING, TY, t_m, 0\rangle\rangle$

Note that (112) is identical with (84). As (83) is equivalent to (84), and (111) is equivalent to (112), we have

(113) $m : AT_{\Psi}[f]$ iff $m : At_{\Phi}[g]$

This means that JP's remark is true if ST's advice is followed, though the converse does not hold because of the self-referential condition of satisfaction of ST's advice.

Here we have succeeded in capturing one of the important logical relations between illocutionary acts with different forces. While JP's remark is an example of what is either true or false, ST's advice is not a thing of this kind. The notion of situations having certain types enables us to state what is common in their contents. The described situation of JP's remark is identical with that of ST's advice and their descriptive types have common features such that one and the same described situation can be of both types at once.

This means that we can avoid identifying contents of illocutionary acts with propositions understood as truth value bearers. As we have a pair of a described situation and a descriptive type in each of our examples, we could have an corresponding Austinian proposition for each of the illocutionary acts we are considering. But what is important about our analysis is the fact that we don't have to identify the contents of the illocutionary acts in question with these Austinian propositions. In the case of JP's remark, such identification is not problematic because JP's remark itself is what is either true or false, but in the case of ST's advice, identifying its content with an Austinian proposition seems to be identifying what is not either true or false with what is true or false. For each illocutionary act i, $About(i)$ and $Type(i)$ can be used to charcterize under what conditions i will be satisfied. In order to do so, however, we don't have to identify content with a proposition.[12]

7 Meaning Relations

The constraints (52) and (85) in the previous section are meant to capture partially the meanings of the sentences Ψ and Φ respectively as abstract relations between types of situations. The meaning characterizations they give us are partial because these sentences can be used to perform illocutionary acts other than telling and advising. For example, consider the following constraint:

(114) $U_{\Psi} \Rightarrow ASSRT_{\Psi}$

where

(115) $ASSRT_\Psi = [\dot{s} \mid \dot{s} \models \langle\langle ASSERTING, \dot{a}gent, \dot{d}s, AT_\Psi, \dot{t}_u 1\rangle\rangle]$

It also can be considered as partially characterizing the meaning of Ψ.[13]

Since the sentence Ψ can be used to perform illocutionary acts with various illocutionary forces, there will be many such constraints, and so its meaning can be considered as what is common across these constraints. One thing that is common across them is the regular relation between features of the circumstances of utterance and descriptive types of illocutionary acts performed in those circumstances. I propose to examine AT_Ψ in this light. In situation semantics, the meanings of linguistic expressions are usually considered as relations between contexts of their utterance and various objects taken as their semantic values in those contexts. Following Gawron and Peters(1990), I shall treat a context of an utterance as a situation called a "circumstance". In the case of sentences, the relevant semantic values seem to be situation-types. Let $[\![S]\!]$ denote that part of the meaning of a sentence S which is responsible for determining the related situation type for each circumstance. Then, consider our sentence Ψ. If c is a situation, and T is a situation-type, we seem to have

(116) $c\ [\![\Psi]\!]\ T$ iff for some anchor$f$

$$
\begin{aligned}
c &\models \langle\langle REFERRING, \dot{a}gent, \text{“did”}, \dot{t}_j, \dot{t}_u, 1\rangle\rangle[f] \\
c &\models \langle\langle EXPLOITING, \dot{a}gent, \text{“Tomoyuki”}, \dot{r}_T, \dot{t}_u, 1\rangle\rangle[f] \\
c &\models \langle\langle REFERRING, \dot{a}gent, \text{“Tomoyuki”}, \dot{p}_j, \dot{t}_u, 1\rangle\rangle[f] \\
c &\models \langle\langle EXPLOITING, \dot{a}gent, \text{“the meeting”}, \dot{r}_m, \dot{t}_u, 1\rangle\rangle[f] \\
c &\models \langle\langle REFERRING, \dot{a}gent, \text{“the meeting”}, \dot{m}, \dot{t}_u, 1\rangle\rangle[f]
\end{aligned}
$$

and

$$
\begin{aligned}
T = [\dot{s} \mid \dot{s} \models \langle\langle & JOKING, \\
& \dot{p}_j \upharpoonright (\dot{r}_T \models \langle\langle NAMED, \dot{p}_j, \text{“Tomoyuki”}, 1\rangle\rangle), \\
& \dot{t}_j \upharpoonright \{\langle\langle PRECEDES, \dot{t}_j, \dot{t}_u, 1\rangle\rangle, \\
& \quad \langle\langle TEMP, \dot{t}_j, \\
& \quad\quad \dot{m} \upharpoonright \{(\dot{r}_m \upharpoonright \{\langle\langle UNIQUE, \\
& \quad\quad\quad\quad\quad\quad \dot{r}_m, MEETING, 1\rangle\rangle\} \\
& \quad\quad\quad\quad\quad\quad \models \langle\langle MEETING, \dot{m}, 1\rangle\rangle)\}, 1\rangle\rangle\}, 0\rangle\rangle][f]
\end{aligned}
$$

Note that $u_\Psi[\![\Psi]\!]AT_\Psi[f]$ and $AT_\Psi[f] = Type(s_t)$ for the anchor f mentioned in the last section. (See (56), (61)–(65), and (67).) This should be expected as AT_Ψ is the situation-type which is associated with the sentence Ψ by the descriptive conventions of English. Let AT_S denote the situation type associated with the sentence S by the descriptive conventions of the language to which S belongs. Generally, I suggest, when an illocutionary act i is performed in a circumstance c_u by utterring a sentence S, the meaning of S constrains $Type(i)$ to be identical with $AT_S[f]$ for some f such that $c_u[\![S]\!]AT_S[f]$.

Similarly, in the case of our sentence Φ, if c is a situation, and if T is a situation-type, we seem to have

(117) $c \; [\![\Phi]\!] \; T$ iff for some anchor f

$$
\begin{aligned}
c \;&\models\; \langle\!\langle ADDRESSING, \dot{a}gent, \dot{a}ddressee, \dot{t}_u, 1 \rangle\!\rangle[f] \\
c \;&\models\; \langle\!\langle REFERRING, \dot{a}gent, \text{“do”}, \dot{t}_j, \dot{t}_u, 1 \rangle\!\rangle[f] \\
c \;&\models\; \langle\!\langle EXPLOITING, \dot{a}gent, \text{“the meeting”}, \dot{r}_m, \dot{t}_u, 1 \rangle\!\rangle[f] \\
c \;&\models\; \langle\!\langle REFERRING, \dot{a}gent, \text{“the meeting”}, \dot{m}, \dot{t}_u, 1 \rangle\!\rangle[f]
\end{aligned}
$$

and

$$
\begin{aligned}
T \;=\; [\dot{s} \mid \dot{s} \models \langle\!\langle & JOKING, \dot{a}ddressee, \\
& \dot{t}_j \upharpoonright \{\langle\!\langle PRECEDES, \dot{t}_u, \dot{t}_j, 1 \rangle\!\rangle, \\
& \quad \langle\!\langle TEMP, \dot{t}_j, \\
& \quad\quad \dot{m} \upharpoonright \{(\dot{r}_m \upharpoonright \{\langle\!\langle UNIQUE, \\
& \quad\quad\quad\quad \dot{r}_m, MEETING, 1 \rangle\!\rangle\} \\
& \quad\quad\quad\quad \models \langle\!\langle MEETING, \dot{m}, 1 \rangle\!\rangle)\}, 1 \rangle\!\rangle\}, 0 \rangle\!\rangle][f]
\end{aligned}
$$

Again, $u_\Phi [\![\Phi]\!] AT_\Phi[g]$ and $AT_\Phi[g] = Type(s_a)$, for the anchor g mentioned in the last section. (See (89), (92), (94)–(96), and (98).)

One of the tasks of a systematic theory of meaning is to give a compositional account of meaning relations of this kind. In order to have such an account, we need some notion of the structure of utterance. As Barwise and Perry (1983: 122) have pointed out, there is a necessary stuructural constraint on saying: saying a compound expression $(\alpha\beta)$ at spatio-temporal location l_u involves saying α at sublocation l_1 and saying β at another sublocation l_2 such that $l_1, l_2 \subseteq l_u$ and l_1 precedes l_2. Along such a structure, the meaning relations $[\![(\alpha\beta)]\!]$ can be built, starting with the meaning relations $[\![\alpha]\!]$ and $[\![\beta]\!]$. Examples of such an account can be found in Gawron and Peters(1990) and Suzuki and Tutiya(1991).

8 Conclusion

I have presented here the basic ideas of, and argument for, an ascription based theory of illocutionary acts. It is called ascription based because its basic formulas are formulas ascribing actions to agents. For example, the following formula ascribes an act of telling to the agent $f(\dot{a}gent)$:

(118) $s_t \models \langle\!\langle TELLING, f(\dot{a}gent), f(\dot{a}ddressee), f(\dot{d}s), AT_\Psi[f], f(\dot{t}_u), 1 \rangle\!\rangle$

Similarly, the following formula ascribes an act of uttering to the agent $g(\dot{a}gent)$:

(119) $u_\Phi \models \langle\!\langle UTTERRING, g(\dot{a}gent), \Phi, g(\dot{t}_u), 1 \rangle\!\rangle$

In this paper, I have also presented a set of basic ideas which can be developed into a general theory of content for illocutionary acts. By extending Austin's theory of truth, I have re-introduced the notion of described situation and the notion of descriptive type of an illocutionary act. When an illocutionary act i is performed in a circumstance c_u by utterring a sentence S, the meaning of S constrains $Type(i)$ to be identical with $AT_S[f]$ for some f such that

$c_u[\![S]\!]AT_S[f]$. The meaning relation, $[\![S]\!]$, here is that part of the meaning of a sentence, S, which corresponds to the descriptive conventions of the language to which S belongs.

The meaning of a sentence as a whole, on the other hand, is interpreted as being partially captured by constraints relating the type of situation in which that sentence is uttered and the type of situation in which a particular sort of illocutionary act is performed. Our examples were the constraints

(52) $U_\Psi \Rightarrow TELL_\Psi$

and

(85) $U_\Phi \Rightarrow ADV_\Phi$

Although they are not factual, they work as far as background conditions are taken for granted.

By treating illocutionary acts as acts, it becomes possible to incorporate insights from general theories of action into a theory of illocutionary acts. Tools, I hope, can be developed for charaterizing conventional effects of illocutionary acts within some such framework.

Notes

1. An earlier version of sections 5–6 of this paper was presented at CSLI Seminar, at CSLI, Stanford University, U.S.A, on November 8, 1990, under the title "Meaning and Content in Speech Acts." Some of the basic ideas had been presented still earlier in a draft titled "Speech Acts and Local Constraints", which had been read at a meeting of the natural language working groupe at Institute for the New Generation Computer Technology (ICOT), Japan, on January 16, 1990. The penultimate draft was read at IMLLAI (International Meeting on Language, Logic, and Artificial Intelligence, Fortaleza, Brazil), on July 15, 1998. Comments from, and discussions with, the people present at these meetings were of much help to me.

2. Though Devlin(1991: 33) treats w as if it were a situation, his "Theorem 3" says that w is not a situation. See Devlin(1991: 285–9).

3. For example, see Cohen and Levesque(1985) and Nakayama(1998).

4. For example, the relation $\triangleright$ of one situation's causing another, and the object-type $I(\mathcal{K})$ of having an intention to perform the action $\mathcal{K}$ seem to be of much use. See Devlin (1991: 184 and 248).

5. It might be objected that t_m seems to be too long for joking. What we have here might not be (32), but

(120) $m \models (\forall \dot{t} \subseteq t_m)\langle\!\langle JOKING, TY, \dot{t}, 0\rangle\!\rangle$

where "$\dot{t} \subseteq t_m$" means that $\dot{t}$ is included in t_m. Though I find (120) more tempting than (32) as a description of the situation we have, quantified infons are beyond the scope of our minimum situation theory presented in section 2.

As far as our present discussion is concerned, we don't have to decide which is better. It doesn't affect the points I am seeking to make in this paper. So let me simplify our discussion by adopting (32).

6. Note that $\dot{m}$ in AT_Ψ is only required to be a meeting. Strictly speaking, this is incorrect. The use of "the meeting" requires the uttering agent to exploit some resource situation in which $\dot{m}$ is the unique meeting. More satisfactory treatment will be introduced later.

7. What Searle and Vanderveken call expressives are the sort of illocutionary acts about which the question of satisfaction will not arise. They will call for a separate treatment.

8. As this account of satisfaction does not pay attention to self-referential conditions, it cannot be said to be the full accout. About self referential conditions, see Vanderveken (1990: 132–3).

9. Note that we have here included the self-referential conditions of satisfaction mentioned in the last note.

10. Though the analysis of background conditions for the various illocutionary acts is beyond the scope of present paper, I would like to note that what Searle and Vanderveken call propositional content conditions, preparatory conditions and sincerity conditions might, at least partly, be formulated as consituents of backgroud conditions.

11. The $UNIQUE$ relation is introduced in Gawron and Peters (1991: 41-3). Note that the condition imposed on $\dot{m}$ here is captured by a unit set of a parametric proposition, namely

$$\{(\dot{r}_m \upharpoonright \{\langle\langle UNIQUE, \dot{r}_m, MEETING, 1\rangle\rangle\} \models \langle\langle MEETING, \dot{m}, 1\rangle\rangle)\}$$

Though parametric propositions are not explicitly introduced in section 2, parameters can occur not only in infons but also in propositions since they can appear wherever objects of the same type can appear. So let me suppose that not only parametric infons but also parametric propositions can be used to impose conditions on parameters. The condition imposed on $\dot{p}_j$ is also captured by a parametric proposition $(\dot{r}_T \models \langle\langle NAMED, \dot{p}_j, \text{“Tomoyuki”}, 1\rangle\rangle)$

12. A similar strategy is available even within non-Austinian theories of content. Suppose there are rules associating propositions to sentences used in particular contexts. Then, the proposition associated with a sentence in a particular context can be used to characterize conditions of satisfaction for those illocutionary acts which can be performed by uttering that sentence in that context. In order to do so, we don't have to identify the proposition with the contents of those illocutionary acts.

13. We should expect this constraint to hold where we have the constraint (52) because we have another constraint

(121) $TELL_\Psi \Rightarrow ASSRT_\Psi$

This is an example of illocutionary commitment mentioned before. It is based on the abstract conceptual relation between the illocutionary force of telling and that of asserting, and as such it holds unconditionally, though (52) and (114) do not. Moreover, it seems to provide us with more information about u_Ψ, namely:

(122) $u_\Psi : ASSRT_\Psi[f]$

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