Some Derivational Constraints on
German Word Formation

Shin, Soo Song
Department of German
College of Humanities
Seoul National University

I will examine in this paper the so-called Aktionsart of German verbs from which nominal compounds can be derived. The Aktionsart of German verbs in my paper is divided into four distinctive groups, i.e. Aktion, Aktivität, Prozeß und Zustand.[1] There are, however, numerous nominal compounds which are composed of a basic determinant and determinate nouns. First I will introduce some theoretical problems concerning the treatment of noun-noun compounds, and then on the basis of my research on German noun-noun compounds (1981), I will develop my own theory handling some derivational constraints on -er word formations in German as examples.

1.

In order to describe the meaning of such noun-noun compounds, the transformationalists like Lees (1966), Motsch (1970), Kürschner (1973), Levi (1978), etc. assumed certain underlying structures which should stand in a paraphrase relationship with noun-noun compounds. The abstract verbs in the underlying

structures are deleted during the derivation of noun-noun
compounds. The following noun-noun compounds are examples
from Levi (1978):

(1) tear gas, disease germ, concussion force, ... (CAUSE)
    (N_2 which causes N_1)

(2) hand brake, radio communication, shock treatment, ... (USE)
    (N_2 which is used by N_1)

(3) boiler shop, arms budget, sanitation engineer, ... (FOR)
    (N_2 which is for N_1)

For noun-noun compounds, as in (1), Levi assumed abstract
verbs like CAUSE, USE, FOR, ect. Sentence structures corres-
ponding to these compounds include gas which causes tear,
germ which causes disease, brake which is used by hand, commu-
nication which is used by radio, shop which is for boilers, etc.

Motsch (1970) suggested also a similar method for treating
German noun-noun compounds. The following German examples
can be treated exactly like the English examples cited above,
which are transformationally derived from underlying structures:

(2)(a) Metaltisch, Glasscheibe, Holztür, ... (BESTEHEN AUS)
        (N_2 besteht aus N_1)

   (b) Dampfschiff, Pferdewagen, Windmühle, ... (TREIBEN,
        BEWEGEN)(N_1 bewegt N_2) oder (N_1 treibt N_2)

   (c) Fischfrau, Geldbote, Zeitungsjunge, ... (VERKAUFEN,
        BRINGEN)(N_2 verkauft N_1) oder (N_2 bringt N_1)

   (d) Bienenhonig, Computerlyrik, Ziegenmilch, ... (PRO-
        DUZIEREN)(N_1 produziert N_2)

   (e) Wiesenblume, Feldstein, Almhütte, ... (SICH BEFINDEN)
        (N_2 befindet sich auf/in N_1)

28   .....

Therefore Metaltisch is interpreted as ein Tisch, der aus
Metal besteht, Dampfschiff as ein Schiff, das mit Dampf ge-
trieben wird, Fischfrau as eine Frau, die Fisch verkauft,
Ziegenmilch as Milch, die die Ziegen produzieren, Wiesenblume
as eine Blume, die sich auf der Wiese befindet etc.

The transformational derivation of noun-noun compounds from
underlying sentence structures is however in several respects
inadquate. According to Downing (1979) and Dowty (1979)
there remain theoretical problems such as:

1. There is no limit defining all and only the necessary
   abstract verbs for all possible or even for existing
   noun-noun compounds.

2. "There is no specification of just what the meaning of
   CAUSE, USE, FOR, etc. are supposed to be."

3. Abstract verbs for noun-noun compounds are sometimes
   established in an arbitrary way. For instance, the
   underlying abstract verb for headache pills and ferti-
   lity pills might be posited as FOR; however, fertility
   pills are for enhancing fertility, while headache pills
   are for curing a headache.

4. There are above all things critical semantic problems
   concerning the variables and quantifications of deter-
   minate and determinant words. For instance, is drug
   death "death caused by a (certain) drug" or "death
   caused by any drug"?

In order to overcome such difficulties, Dowty and Downing took the view that potentially any semantic relationship can be given determinant and determinate words if it is appropriately classificatory in view of pragmatic and cultural correlates". The following formalization for the describing of the meaning of noun-noun compounds is from Dowty (1979):

$$(3) \quad \lambda x \bigvee P[P\{x\} \wedge \bigvee R \, [\text{ appropriately-classificatory}'(R) \wedge$$
$$\bigwedge y [P\{x\} \longrightarrow [\beta'(y) \wedge \text{ typically}' \, (^\wedge \bigvee z [\alpha'(z) \wedge$$
$$R(y,z)] \,)]]]$$

The semantic content of (3) is: "a novel compound $\alpha\beta$ denotes some set [...] such that all members of this set are β's and are typically associated by some appropriately classificatory relation to an α ..." (Dowty 1979: 319)

Dowty, however, left in the above formalization the very important problem concerning the denotations of α and β unsolved. Let us try to find out what are the exact denotations of determinant and determinate words. Look at the following examples (Shin 1981:725):

(4)(a) der Bleistift, der auf dem Tisch liegt, ...

(b) der Bleistift auf dem Tisch

(c)*Tischbleistift

(5)(a) das Mädchen, das die Mappe hat, ...

(b) das Mädchen mit der Mappe

(c)*Mappenmädchen

((6)(a) das Auto, das vor dem Haus steht, ...

    (b) das Auto vor dem Haus

    (c)*Hausauto

It is assumed that there are paraphrase relationships between (a)-sentences and (b)-nominal phrases. However, if we derive noun-noun compounds from the sentences and the nominal phrases in (a) and (b), we get only ungrammatical compounds as shown in (c). The determinant words, Tisch, Mappe and Haus, in the noun-noun compounds, should have generic readings, even if they were grammatical, while they have only existential readings in the relative clauses and the attributive nominal phrases. Look at the following examples:

(7)(a) Der Heuwagen wurde niedergebrandt.

  (b) Der Wagen mit Heu wurde niedergebrandt.

(8)(a) Der Werkleiter wurde ausgekündigt.

  (b) Der Leiter des Werkes wurde ausgekündigt.

(8)(a) Der Türschlüssel ist verloren.

  (b) Der Schlüssel für die Tür ist verloren.

There is no way to modify the determinant words Heu, Werk, and Tür in Heuwagen, Werkleiter, and Türschlüssel with definite descriptions and quantifier words. The attributive nominal phrases corresponding to the determinant words Heu, Werk, and Tür can be however, easily modified without any problem with definite desriptions or quantifier words as shown in (9)(a)-(c) (Shin 1981:724):

(9)(a)   Der Wagen mit   { viel }   Heu wurde niedergebrandt.
                         { wenig }
                         { ... }

   (b)   Der/die Leiter { des }   Werkes/Werke wurde(n)
                         { jedes }   ausgekündigt.
                         { mancher }
                         { einiger }
                         { ... }

   (c)   Der/die Schlüssel für { diese }   Tür/Türen ist/sind
                               { jede }   verloren.
                               { manche }
                               { viele }
                               { ... }

   (d)   Meine Tasche für { diese }   Bücher ist zu klein.
                          { manche }
                          { viele }
                          { ... }

Shin's analysis of the German noun-noun compounds (1981)
shows that the first constituents of compounds (i.e. determi-
nant words) always generic readings and denote some special
types of entities which are like G. Carlson's sets of kind-
level individuals. It was suggested in Shin (1981) that the
German noun-noun compounds should be semantically described as
the following (Shin 1981:727-28):

(10) $\lambda x^o \exists G [G\{x^o\} \wedge \exists CR \forall y^k [[\beta'(y^k) \wedge R(x^o, y^k)$

        $\longrightarrow CR(y^k, \alpha')]]$

A noun-noun compound $\alpha\beta$ denotes some set of object-level indi-

viduals such that the members of this set are the realizations
of the kind-level individuals of β which has some appropriate
compound formation relationships to the intension of $\mathcal{L}$.
With reference to this, Shin (1981) points out: "As Downing
assumed, nominal compounds are like ad-hoc names. however,
they do not simply denote names, but rather denote some kind
names, for instance, Bierglas is a name of a kind of Glas,
Heuwagen is a name of a kind of Wagen, Türschlüssel is a name
of kind of Schlüssel, Frauengesicht is a name of a kind of
Gesicht, etc." (Shin 1981:728)

2

On the basis of my research on German noun-noun compounds
I attempt to describe the meaning of the determinant words
which are derived from verbal objects. Such type of word
formation includes -er and -ung derivations.
The word formation with the suffix -er indicates the so
called Nomina agentis. The Nomina agentis can, however,
have several different meanings depending on context uses.
For instance, Gepäckträger is someone who carries luggage as
a profession or we can use this word formation for someone
who carries luggage just once in a certain situation. There-
fore in the case of Gepäckträger we have two different mean-
ings, i.e., an iterative activity performed as a profession
and a simple activity performed in a certain space and time.
Let us try to define what is the semantic content of the
determinant word Gepäck. Is it also the set of entities of

kind-level individuals which always have generic reading or is it a set of other level individuals? Look at the following examples:

(11)(a) Der Gepäckträger trägt das Gepäck nicht.

(b) Derjenige/jemand/einer, der (berufsmäßig/beruflich/ von Berufs wegen) Gepäck trägt, trägt das Gepäck nicht.

(c) *Derjenige/jemand/einer, der (gerade/jetzt) das Gepäck trägt, trägt das Gepäck nicht.

The complex -er word formation Gepäckträger can be paraphrased with relative clauses in (11)(b) and (c). But it is ungrammatical to use the Gepäckträger in the context of (11)(c). (11)(b) means someone who carries luggage as a profession doesn't carry the luggage. This sentence is grammatical. (11)(c) means, on the other hand, someone who carries the luggage doesn't carry that luggage, which is logically contradictory. The habitual activity and the situative activity indicated in the meaning of Gepäckträger are mutually exclusive. Only the meaning of habitual activity of Gepäckträger is acceptable in (11)(a) which corresponds roughly to the meaning of (11)(b). An interesting phenomenon is that the determinant word Gepäck in Gepäckträger is given as a mass noun in the relative clause of (11)(b), whereas it is given as a definite description in the relative clause of (11)(c). Look at another examples:

(12)(a) Der Krankenpfleger pflegt den Kranken nicht.

(b) Derjenige/jemand/einer, der (berufsmäßig/beruflich/
von Berufs wegen) die Kranken pflegt, pflegt die
Kranken nicht.

(c) *Derjenige/jemand/einer, der (gerade/jetzt) den
Kranken pflegt, pflegt den Kranken nicht.

The ungrammaticality can be explained in the same manner as
in the case of (11)(c). The sentences given in (12)(a) and
(b) stand in a paraphrase relationship to each other and the
determinant word Kranken in Krankenpfleger is given as a inde-
finite plural in the relative clause of (12)(b) whereas it is
given again as a definite description in the relative clause
of (12)(c), which is ungrammatical. I assume that the definite
description for nominals in the relative clauses has to do
with an existential reading and it cannot stand for the deter-
minant word of complex -er word formations. Only mass nouns,
bare plurals or some abstract nouns (these I will treat in
my future work) seem semantically related to the determinant
words of -er word formations and these nouns constitute the
kind nouns.

In addition to the activity performed as a profession, there
are various activities indicated in the meaning of complex -er
word formations. Look at the following examples:

(13)(a) Der Zigarettenraucher raucht die Zigarette nicht.

   (b) Derjenige/jemand/einer, der (gewöhnlich/gewohn-
       heitsmäßig) Zigarettenraucht, raucht die Zigarette
       nicht.

   (c) Derjenige/jemand/einer, der (gerade/jetzt) die
       Zigarette raucht, raucht die Zigarette nicht.

The meaning of Zigarettenraucher is ambiguous. It means some-
one who smokes cigarettes habitually, but it also means someone
who smokes a cigarette just once at a special time and place.
Only the meaning of habitual activity indicated in Zigaretten-
raucher, however, is acceptable in (13)(a), which corresponds
to the meaning of the relative clause in (13)(b). The meaning
of a situational activity in Zigarettenraucher which is descri-
bed with the relative clause in (13)(c) is incompatible with
the Zigarettenraucher in (13)(a) because it means someone who
just smokes the cigarette doesn't smoke the cigarette and it
is therefore logically contradictory. The determinant word
Zigaretten in Zigarettenraucher is given as a bare plural in
the relative clause in (13)(b). I take one more example con-
cerning the habitual activity indicated in the meaning of
complex -er word formations:

   (14)(a) Der Briefmarkensammler sammelt die Briefmarken
           nicht.

      (b) Derjenige/jemand/einer, der (als Hobby) Brief-
          marken sammelt, sammelt die Briefmarken nicht.

(c) *Derjenige/jemand/einer, der (gerade/jetzt) die

Briefmarken sammelt, sammelt die Briefmarken nicht.

As in the cases of Gepäckträger and Zigarettenraucher, Brief-
markensammler is also ambiguous. It means someone who collects
stamps as a hobby, or someone who collect stamps just once in
a special time and space; i.e., it may signify situational
activity and habitual activity at the same time. The meaning
of a situational activity indicated in the Briefmarkensammler
which corresponds to the relative clause in (14)(c) is not
correct for the Briefmarkensammler in (14)(a) because it incurs
the logical contradiction that someone who collects the stamps
doesn't collect them. Again the determinant word Briefmarken
in Briefmarkensammler is given as a bare plural in the relative
clause of (14)(b), whereas it is given as a definite descrip-
tion in the relative clause of (14)(c).

We can also find numerous Simplizia, i.e., simple word for-
mations with the suffix -er which are derived from basic in-
transitive verbs and which show the meaning ambiguity concern-
ing activities performed as a profession, as a hobby and as a
habit, on the one hand, and activities performed just once in
a special time and space, on the other.

Look at the following examples:

(15)(a) Der Fahrer fährt nicht.

(b) Derjenige/jemand/einer, der (beruflich/berufsmäßig/
von Berufs wegen) fährt, fährt nicht.

(c) *Derjenige/jemand/einer, der (gerade/jetzt)

     fährt, fährt nicht.

(16)(a) Der Träumer träumt nicht.

   (b) Derjenige/jemand/einer, der (gewöhnlich/

        gewohnheitsmäßig) träumt, träumt nicht.

   (c) *Derjenige/jemand/einer, der (gerade/jetzt)

        träumt, träumt nicht.

(17)(a) Der Ang(e)ler angelt nicht.

   (b) Derjenige/jemand/einer, der (als Hobby) angelt,

        angelt nicht.

   (c) *Derjenige/jemand/einer, der (gerade/jetzt)

        angelt, angelt nicht.

The meaning of Fahrer in (15)(a) is ambiguous and it can
be described either with the relative clause in (15)(b)
or with the relative clause in (15)(c). (15)(b) is gramma-
tical because its meaning doesn't make any logical con-
tradiction: someone who drives as a profession might not
drive for a while. However, the meaning of (15)(c) re-
veals a logical contradiction: the expression that someone
who drives doesn't drive is semantically unacceptable.
The ungrammaticality of (16)(c) and (17)(c) can be explained
in a similer way.

   By way of summarizing the activities indicated in the
meaning of -er word formations, the following two cate-
gories can be given along with their examples:

38

(18) A.   1. an iterative activity performed as a profession:

Besenbinder, Buchbinder, Faßbinder, ...

Fleischbeschauer, Leichenbeschauer, Trichinen-

beschauer, Totenbeschauer, ...

Handschriftdeuter, Textdeuter, Traumdeuter, ...

Banknotenfälscher, Paßfälscher, Urkundenfälscher, ...

Kaminfeger, Schornsteinfeger, Straßenfeger, ...

Briefmarkenhändler, Buchhändler, Möbelhändler, ...

Feldhüter, Forsthüter, Wildhüter, ...

Deutschlehrer, Klavierlehrer, Sportlehrer, ...

Brillenmacher, Bürstenmacher, Sargmacher, Schirm-

macher, Teppichmacher, Taschenmacher, ...

Krankenpfleger, Tierpfleger, ...

Fensterputzer, Laternputzer, Schuhputzer, ...

Buchprüfer, Güteprüfer, Steuerprüfer, ...

Briefträger, Gepäckträger, Fahnenträger, ...

Bergverwalter, Forstverwalter, Konkursverwalter,

Lagerverwalter, Vermögensverwalter, ...

Bienenzüchter, Blumenzüchter, Fischzüchter,

Geflügelszüchter, Pferdezüchter, Viehzüchter, ...

(complex -er word formations)

Anstreicher, Bäcker, Drechsler, Dreher, Drucker,

Erzieher, Heger, Henker, Lehrer, Maler, Richter,

Schneider, Verteidiger, ...

Epiker, Glaser, Graphiker, Gutachter, Hafner,

Käser, Keramiker, Köhler, Küfer, Leitartikler,

Maurer, Nägler, Seiler, Schlosser, Töpfer, Werbe-

texter, Ziegler, ... (-er word formations derived

from the abstract verbs)

Actually we can find hundreds or even thousands

such examples of A.1.

2. an iterative activity performed as a habit:

Glasgucker, Fenstergucker, Kartengucker, Schlüssel-

lockgucker, ...

Opiumraucher, Tabakraucher, Zigarettenraucher, ...

Weintrinker, Schnapstrinker, Biertrinker, ...

(complex -er word formation)

Mogler, Stänkerer, Stotterer, Träumer, Schieler, ...

(Simplizia)

3. an iterative activity performed as a hobby:

Bergsteiger, Waldläufer, Stadtbummler, Schlitt-

schuhläufer, Altertumssammler, Antiquitätensammler,

Autogrammsammler, Briefmarkensammler, Insekten-

sammler, Pflanzensammler, Volksliedsammler, ...

Basketballspieler, Golfspieler, Fußballspieler, ...

(complex -er word formations)

Bummler, Geiger, Kegler, Schwimmer, Trompeter, ...

(Simplizia)

B. Simple activities performed at a special time and

place: all of the examples in the category A can also

belong to this category.

3.

On the basis of the research on word formations in (11)-
(17), I assume that the determinant words of -er word
formations which are derived from verbal objects indicate
exactly the same type of kind-level individuals as in the
case of the determinant words in noun-noun compounds. Let
us try to derive -er word formations within the framework
of Montague's theory. The Gepäckträger is taken as an
example for derivation.

(19)
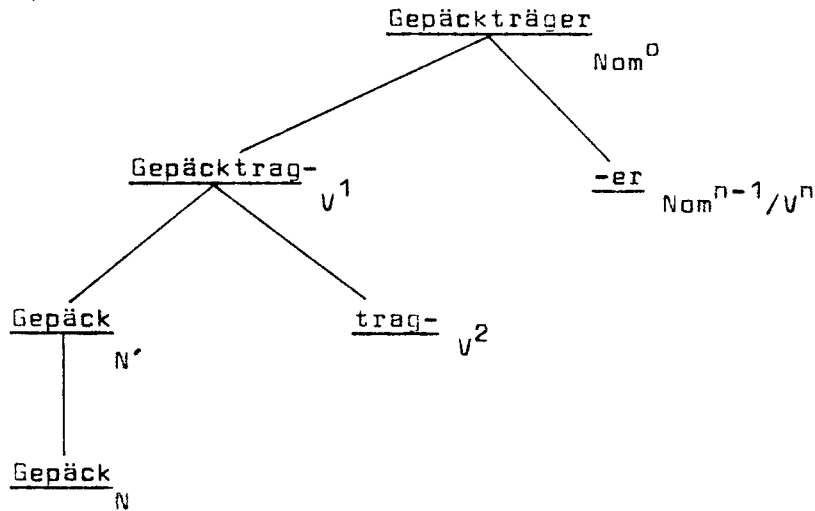
The derivation proceeds from the bottom of basic verbs
and their objects which become determinant words in the
surface of complex -er word formation. First we derive the
kind noun Gepäck by a lexical rule which converts every
common noun into a kind noun.[2] The kind noun Gepäck has a
semantic type of $\langle\langle s, \langle e^k, t \rangle\rangle, t \rangle$; i.e., it is a term

expression. The translation of the kind noun is exactly
like that of the proper noun (Carlson 1977).
In the next step, we derive the expression <u>Gepäckträg</u>,
i.e., the combination of verb-object expression by the
following syntactic and translation rule:[3]

(SR-1)   If $\alpha \in P_{\langle T,i \rangle}$, $\beta \in B_V{}^n$, then $F_{115}(\alpha,\beta) \in P_V{}^{n-1}$,

where $F_{115}(\alpha,\beta) = \alpha^\frown \beta$

(TR-1)   If $\alpha \in P_{\langle T,i \rangle}$, $\beta \in B_V{}^n$ and α translates into

α', β into $\lambda x_1 \ldots x_i \ldots x_n \beta'(x_1, \ldots, x_i,$

$\ldots, x_n)$, then $F_{115}(\alpha,\beta)$ translates into

$\lambda x_1 \ldots \emptyset \ldots x_n \alpha'(^\wedge \lambda x_i [\beta'(x_1, \ldots, x_i,$

$\ldots x_n)])$

Finally we need the process of -er word formation, i.e.,
<u>Gepäckträger</u> for which the following word formation rule
could be used:

(SR$^\omega$-1)   If $\alpha \in B_{Nom}{}^{n-1}/V{}^n$ and $\beta \in P_V{}^n$, then $F_{\omega 1}(\alpha,\beta) \in$

$P_{Nom}{}^{n-1}$ where $F_{\omega 1}(\alpha,\beta) = \beta^\frown \alpha$

(TR$^\omega$-1)   If $\alpha \in B_{Nom}{}^{n-1}/V{}^n$ and $\beta \in P_V{}^n$, and α trans-

lates into $\lambda P \lambda r[P\{r\} \wedge S\{r\}]$ and β translates

into β', then $F_{\omega 1}(\alpha,\beta)$ translates into $\alpha'(^\wedge \beta')$

where S indicates a free variable whose semantic

value is dependent on texts.

We are now in a position to translate the <u>Gepäckträger</u>
into intensional logic which looks like the following:

(20) 1 Gepäck $\longrightarrow$ $\lambda P P\{g\}$

2 trag $\longrightarrow$ $\lambda xy\ trag'(x,y)$ $(= \lambda x^i y^i\ \exists z^s\ \exists w^s$
$[R(z^s,y^i) \wedge R(w^s,x^i) \wedge trag'(w^s,z^s)])$

3. Gepäcktrag $\longrightarrow$ $\lambda x^0\ \lambda P P\{q\}(^{\wedge}\lambda y^k\ \exists z^s\ \exists w^s\ [R(z^s,y^k)$
$\wedge R(w^s,x^0) \wedge trag'(w^s,z^s)])$

$\longrightarrow \lambda x^0\ \exists z^s\ \exists w^s\ [R(z^s,\ g) \wedge R(w^s,x^0) \wedge$
$trag'(w^s,z^s)]$

4 er $\longrightarrow$ $\lambda P\ \lambda r\ [P\{r\} \wedge S\{r\}]$

5 Gepäckträger $\longrightarrow$ $\lambda r[\exists z^s\ \exists w^s[R(z^s,\ g) \wedge R(w^s,\ r) \wedge$
$trag'(w^s,\ z^w)] \wedge S\{r\}]$

The translation of <u>Gepäckträger</u> denotes some set of agent
individuals such that a realization stage of agent and a
realization of the kind noun <u>Gepäck</u> are related through an
extensional predicate <u>trag'</u>. The suffix -er is considered
to be a function from properties of individuals to a set of
agent individuals. In order to make use of the -er word
formation in a sentence, we need a sort of term formation
rule such as:

(21) a specific reading: $\lambda P_a\ \lambda Q_a\ \exists q\ [P_a\{q\} \wedge Q_a\{q\}]$
$\lambda P_a\ \lambda Q_a\ \hat{\iota} q\ [P_a\{q\} \wedge Q_a\{q\}]$

a general reading: $\lambda P_a \lambda Q_a \exists q [P_a\{q\} \longrightarrow Q_a\{q\}]$

a generic reading: $\hat{\alpha}$, if α indicates an er word

formation.

On the basis of the term formation rules we can derive the nominal phrase der Gepäckträger as follows:

(22) 1 der Gepäckträger $\longrightarrow \lambda Q_a \, \iota q [\exists z^s \exists w^s [R(z^s, g) \wedge$

$R(w^s, q) \wedge \text{trag}'(w^s, z^s)] \wedge S\{q\} \wedge Q_a\{q\}]$

We are able to get the translation of (11)(a) in the same way that we derived the nominal phrase der Gepäckträger. Reducing each step of the derivational process, we get the following translation for (11)(a):

(22) 2 der Gepäckträger trägt das Gepäck nicht $\longrightarrow$

$\iota q \exists z^s \exists w^s [R(z^s, g) \wedge R(w^s, q) \wedge \underbrace{\text{trag}'(w^s, z^s)}$

$S\{q\} \wedge \iota y^D [R(z^s, y^D) \wedge \text{Gepäck}'(y^D) \wedge$

$\underbrace{\neg \, \text{trag}'(w^s, z^s)}$

The result of the translation for (11)(a) is a logical contradiction which is indicated over the dotted line. It corresponds to the translation for (11)(c), which also constitutes a logical contradiction. However, if we understand the meaning of Gepäckträger as someone who carries luggage as a profession, i.e., someone performing an iterative activity for a profession, the translation of (11)(a) should not reveal any logical contradiction. How could we get the trans-

44

lation for (11)(a) which doesn't present any logical con-
tradiction and corresponds exactly to the meaning of (11)(b)?

I assume that the translation of Gepäckträger in (11)(a)
denotes some set of agent individuals who perform habitual
activities of Gepäck tragen. The habitual activities of
Gepäck tragen are composed of each happening event of Gepäck
tragen, i.e., each stage of Gepäck tragen. Therefore the
translation of Gepäck tragen doesn't simply denote a set of
stage-level individuals. Anyone who carries luggage as a
profession must be engaged in performing an iterative acti-
vity of carrying each piece of lugnage. In order to derive
habitual readings of Gepäck tragen we need instead of trans-
lation in (20) 2 and 3, we need the following translations:

(20) 2′ trag $\longrightarrow$ $\lambda x^s \lambda y^k \exists z^s [R(z^s, y^k) \wedge \text{trag}'(x^s, z^s)]$

3′ Gepäcktrag $\longrightarrow$ $\lambda x^s \lambda PP\{q\}(^\wedge \lambda y^k \exists z^s [R(z^s, y^k) \wedge \text{trag}'(x^s, z^s)])$

$\longrightarrow$ $\lambda x^s \exists z^s [R(z^s, g) \wedge \text{trag}'(x^s, z^s)]$

The result of translation in (20) 3′ denotes some set of
events or happenings which are considered to be realizations
of some agent individual. For the reading of habitual acti-
vities of Gepäck tragen as a profession I use a special
operator Hab(bituel). For instance, in Hans trägt Gepäck
berufsmäßig (eg. if Hans carries luggage as a profession)
the individual Hans is engaged in the habitual activities
of Gepäck tragen, i.e., the individual Hans has stages con-

stituting the events of Gepäck tragen and each event of

Gepäck tragen forms the habitual activity of Gepäck tragen.

Look at the following translation!

(23) Hans trägt Gepäck (berufsmäßig/beruflich/von

Berufs wegen) $\longrightarrow$

$$\lambda_{PP}\{h\}(^\wedge Hab(^\wedge\lambda x^S \exists z^S [R(z^S, g) \wedge trag'(x^S, z^S)]))$$

$$\longrightarrow Hab(^\wedge\lambda x^S \exists z^S [R(z^S, g) \wedge trag'(x^S, z^S)])(h)$$

The Result of the translation in (23) refers to a habitual

activity of the individual Hans who carries luggage as a

profession. In a similar way, we are now able to derive

Gepäckträger from Gepäck tragen as a habitual activity.

Let us modify the translation of (20) 3´ as follows:

(20) 3″ Gepäcktrag $\longrightarrow$ $Hab(^\wedge\lambda x^S \exists z^S [R(z^S, g) \wedge$

$$trag'(x^S, z^S)])$$

4   er $\longrightarrow$ $\lambda P \lambda r [P\{r\} \wedge S\{r\}]$

5´ Gepäckträger $\longrightarrow$ $\lambda P \lambda r [P\{r\} \wedge S\{r\}(Hab(^\wedge\lambda x^S$

$$\exists z^S [R(z^S, g) \wedge trag'(x^S, z^S)]))$$

$\longrightarrow$ $\lambda r [Hab(^\wedge\lambda x^S \exists z^S [R(z^S, g) \wedge$

$$trag'(x^S, z^S)])(r) \wedge S\{r\}]$$

The result of the translation in (17) 5´denotes some set of

agent individuals such that an habitual activity of Gepäck

tragen as a profession is expressed now with a generic opera-

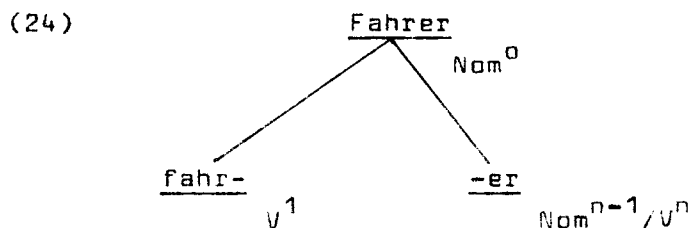tor and its intensional context; therefore, the logical con-

tradiction which we saw in the translation in (22) 2 doesn't
arise.

It is intuitively understandable that someone who carries
luggage as a profession does not always carry it or someone
who collects stamps as a hobby does not collect them for
some time. A cigarette smoker who smokes habitually does
not incessantly smoke in his daily life. Sometimes he is
engaged in other activities: he may eat, work, drive a car,
sleep, etc. Sometimes he smokes, and sometimes he doesn't;
nevertheless, he is called a smoker. The habitual activity
performed by an agent (expressed by suffix -er) is not a
simple activity performed just once at a special time and
place, but it is an activity performed intermittently. As
it is not specified with a special time and place, it is
semantically connected directly with object-level agents
—— but not with their stages.

The determinant words of -er word formations might even
be deleted, if their meanings are recoverable in contexts.
For instance, Setzer is understood to mean Schriftsetzer,
Textsetzer, or Letternsetzer. The number of the determinant
words such as Schrift, Text or Lettern is limited and there-
fore we can figure them out in a given context. There are
many -er word formations which do not even have determinant
words. Even though the -er word formations such as Bäcker,
Henker, Lehrer, Maler, Schneider, Verteidiger, etc. do not
have any determinant words, we understand them nevertheless

47

and can pick out what kind of determinant words should be
in an appropriate way incorperated into -er word formations.
In most cases, they are, however, strongly demotivated or
lexicalized. So a Bäcker means someone who not only performs
an activity of Backen (Eg. bake) but also sells bakery wares.
Schneider performs not only the activity of Schneiden (Eg.
cutting) but also the activity of sewing or stiching. With
word formation rules we treat only productive, syntacti-
cally and semantically motivated word formation processes.

Let us now turn to the problems of derivational constraints
on -er word formations which are derived from intransitive
verbs. As indicated already in (15) and (16), the situa-
tional activities incorporated in Fahrer und Träumer prohibit
us from using them in the contexts of (15)(a), (16)(a), and
(17)(a). Only the habitual activities are compatible with
the meanings of Fahrer and Träumer which could stand in
paraphrase relations with the relative clauses in (15)(b),
(16)(b), and (17)(b). The derivational Process for this
type of word formation is simpler than that for complex -er
word formations. Look at the following syntactic derivation
of Fahrer:

(24)

$$\underset{\text{Nom}^0}{\underline{\text{Fahrer}}}$$

$$\underset{V^1}{\underline{\text{fahr-}}} \qquad \underset{\text{Nom}^{n-1}/V^n}{\underline{\text{-er}}}$$

48

The question as to whether the Fahrer has a reading of
simple activity performed at a certain time and place or
has a reading of habitual activity as a profession should
be answered through the derivational process of the trans-
lation of _Fahrer_. Let us try to derive the translation of
Fahrer:

(25) 1 fahr- $\longrightarrow$ $\lambda x \, [\text{fahr}'(x)]$ $(= \lambda x^o \, \exists y^s \, [R(y^s, \, x^o) \wedge$
$\text{fahr}'(y^s)]$

2 er $\longrightarrow$ $\lambda P \, \lambda r \, [P\{r\} \wedge S\{r\}]$

3 Fahrer $\longrightarrow$ $\lambda P \, \lambda r \, [P\{r\} \wedge S\{r\}](^\wedge \lambda x^o \, \exists y^s$
$[R(y^s, \, x^o) \wedge \text{fahr}'(y^s)])$

$\longrightarrow$ $\lambda r [\exists y^s [\, R(y^s, \, r) \wedge \text{fahr}'(y^s)] \wedge$
$S\{r\}]$

The translation of _Fahrer_ in (25) 3 refers to some set of
agent individuals such that some stage realization of each
agent individual represents the simple activity performed
at a special time and place. Let us continue with the deri-
vation of (15)(a):

(25) 4 der Fahrer $\longrightarrow$ $\lambda Q_a \, \iota q \, [\, \exists y^s [R(y^s, \, q) \wedge$
$\text{fahr}'(y^s)] \wedge S\{q\}] \wedge Q_a\{q\}]$

5 der Fahrer fährt nicht $\longrightarrow$ $\iota q [\exists y^s [R(y^s, \, q) \wedge$
$\text{fahr}'(y^s) \wedge S\{q\}] \wedge \text{fahr}'(y^s)]$

(derivation reduced)

The translation of (15)(a) which is represented with (25) 5 indicates a logical contradition, i.e., $\underline{fahr'(y^S) \land fahr'(y^S)}$. To this translation corresponds roughly the meaning of (15)(c). Therefore the -er word formation Fahrer in which the meaning of situative activity is incorporated cannot be used in the context of (15)(a). If the sentence in (15)(a)should be accepted as a grammatical sentence, we must not derive the Fahrer from the meaning of situational activity but from the meaning of habitual activity. The whole derivational process must be changed as follows:

(26) 1   fahr $\longrightarrow$ $\lambda x^S [\,fahr'(x^S)\,]$

     2   fahr $\longrightarrow$ $Hab(^\wedge \lambda x^S [\,fahr'(x^S)\,])$ (habitual acti-
                                                                 vity)

     3   er $\longrightarrow$ $\lambda P \lambda r [\,P\{r\} \land \; S\{r\}\,]$

     4   Fahrer $\longrightarrow$ $\lambda r [\,Hab(^\wedge \lambda x^S [\,fahr'(x^S)\,])(r) \land \; S\{r\}\,]$

(26) 4 indicates the translation of Fahrer in which the habitual activity of fahren is incorporated. We derive now the whole sentence of (15)(a) as follows:

(26) 5   fährt nicht $\longrightarrow$ $\lambda x^0 \exists y^S [\,R(y^S, x^0) \land \; \neg fahr'(y^S)\,]$
                              (only narrow scope reading of nicht
                              is considered)

     6   der Fahrer $\longrightarrow$ $\lambda Q_a \, \iota q [\,Hab(^\wedge \lambda x^S [\,fahr'(x^S)\,])(r) \land$
                                      $S\{r\} \land \; Q\{r\}\,]$

7   der Fahrer fährt nicht ⟶ iq [Hab($^\wedge \lambda x^s$ [fahr'(x

(x^s)])(r) $\wedge$ S{r}$\wedge \exists y^s$[R(y^s, q) $\wedge$

fahr'(y^s)]]]

The translation in (26) roughly corresponds to the meaning
of (15)(b). In this translation also the habitual activity
of _fahren_ as a profession is expressed with a generic opera-
tor _Hab_ and with an intensional context as its argument.
Therefore the logical contradiction revealed in the trans-
lation of (25)(5) doesn't arise in this case. By means of
exactly the same derivational process, we are now able to
explain the derivational constraints on numerous -er word
formations which derive themselves from intransitive verbs
and involves the ambiguity of simple and habitual activity
performed by agent individuals.

Up to now we have treated only the -er word formations
of the noun-derived noun constructions and of the derived
noun constructions (i.e., the complex -er wordformations
and Simplizia), which reveal the ambiguity of a simple
and habitual activity. There are, however, a large number
of very productive -er word formations which are combined
with attributive nominal phrases and which indicate only
a simple activity performed at a certain time and place.
Examples of such -er word formations are :

  (27) Empfänger des Briefes, Träger des Gepäcks, Erfor-
        scher der Sprache, Fahrer des Autos, Schmeichler

des Lehrers, Leser des Buches, Putzer des Fensters,

Teilnehmer an der Versammlung, etc.

The attributive nominalphrases such as des Briefes, des
Gepäcks, der Sprache, etc. are the objects of base verbs
and are understood as having existential readings. I
assume that this kind of -er word formations involve simple
events or happenings in a special time and place. There-
fore they can not be used in the following contexts:

   (28)(a) *Der Träger des Gepäcks trägt das Gepäck nicht.

      (b) *Der Empfänger des Briefes empfängt den Brief nicht.

      (c) *Der Erforscher der Sprache erforscht die Sprache
          nicht.

If, however, the -er word formations with attributive noun
phrases are combined with object-level predicates, they are
quite acceptable. The following examples prove this fact:

   (29)(a) Der Träger des Gepäck ist ein fleißiger Kerl.

      (b) Der Empfänger des Briefes kennt den Absender
          des Briefes nicht.

      (c) Der Erforscher der Sprache ist der ehmalige
          Rektor unserer Universität.

I will show the logical contradition of the meaning of (28)(a)
as an example. Look at the following syntactic derivation
of Träger des Gepäcks:

(30)

Träger des Gepäcks Nom^0

Träger Nom^1 des Gepäcks $\text{Nom}^{n-1}/\text{Nom}^n$

trag V^2 -er Nom^{n-1}/V^n das Gepäck   T
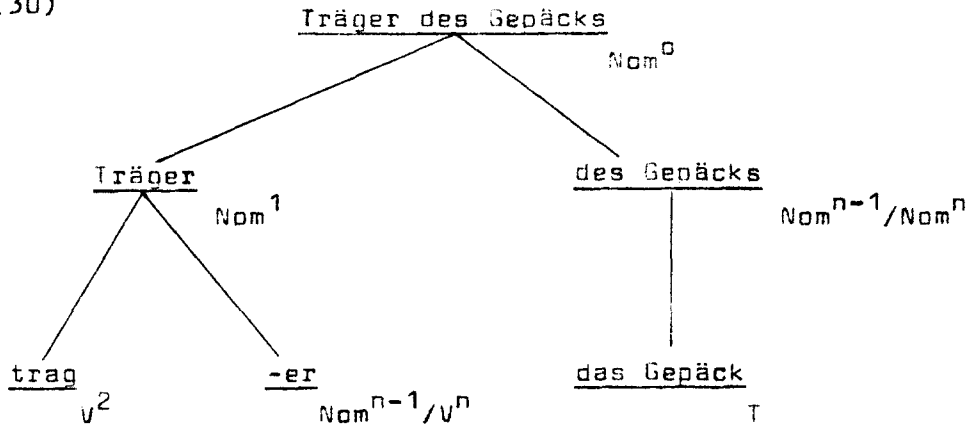
The translation of _Träger des Gepäcks_ into the language of
intensional logic which corresponds to the syntactic deri-
vation of (30) looks like as follows: [4]

(31) 1   Träger des Gepäcks $\longrightarrow \lambda r \, \hat{\iota} x^0 \, \exists z^s \, \exists w^s \, [R(w^s, r) \wedge$
$S\{r\} \wedge \text{Gepäck}'(x^0) \wedge R(z^s, x^0) \wedge$
$\text{trag}'(w^s, z^s)]$

(derivation reduced)

Let us try to derive a term expression from (30):

(31) 2   Der Träger des Gepäcks $\longrightarrow \lambda P_a \, \lambda Q_a \, \hat{\iota} q$
$[P_a\{q\} \wedge Q_a\{q\}] \, ({}^{\wedge}\lambda r \, \hat{\iota} x^0 \, \exists z^s \, \exists w^s$
$[R(w^s, r) \wedge S\{r\} \wedge \text{Gepäck}'(x^0) \wedge$
$R(z^s, x^0) \wedge \text{trag}'(w^s, z^s)])$

$\longrightarrow \lambda Q_a \, \hat{\iota} q \, \hat{\iota} x^0 \, \exists z^s \, \exists w^s [[R(w^s, q) \wedge$
$\text{Gepäck}'(x^0) \wedge R(z^s, x^0) \wedge \text{trag}'(w^s, z^s)]$
$Q_a\{q\}]$

53

We are now in a position to derive the translation of
(28)(a):

(31) 3 Der Träger des Gepäcks trägt das Gepäck nicht

$$\longrightarrow \quad \iota q \; \iota x^O \; \exists z^S \; \exists w^S \big[R(w^S, q) \; \wedge \; \text{Gepäck}'(x^O) \; \wedge$$

$$R(z^S, x^O) \; \wedge \; \underline{\text{trag}'(w^S, z^S)} \big] \; \wedge$$

$$\neg \underline{\text{trag}'(w^S, z^S)} \big]$$

The result of the translation for (28)(a) is a logical con-
tradiction which is indicated over the dotted line in (31) 3.

.

4

In this paper I attempted to describe derivational con-
straints of -er word formations. The suffix -er changes
the set of stage-level entities or the object-level entities
denoting verb-noun constructions into the set of entities
of agent individuals. A special operator Hab(ituell)
controls then the combinations of the -er word formations
with articles, adjectives and predicate parts of sentences.
The habitual activities classified as categories of profession,
habit, and hobby serve as very important factors in compound
formation with the suffix -er. The question as to whether -er
word formations have a reading of habitual activity performed
at a certain time and place is answered in this paper through
the derivational process of translation (in the frame work

54

of Montague's theory). By way of this derivational process
a number of complicated semantic derivational constraints
can be explained.

In my future work I am going to attempt at an explanation
of -ung word formations in a similar way that I treated
-er word formations.

<h2 style="text-align:center">Notes</h2>

1. Compare this Aktionsart of German verbs with at of
   R. Bartsch (1981).

2. In order to derive a kind noun from the corresponding
   object noun I use the lexical rule of Carlson (1977):

   If $\alpha \in P_{CN}$, then $F_m (\alpha) \in P_{CN}$, where $F_m (\alpha) = [\alpha]_{CN}$.

   This rule takes any common noun to a kind noun. However,
   thereby happens no semantic effects.

3. The (SR-1) and the (TR-1) in this paper are based on
   the two rules of categorial syntax of R. Bartsch (1979):

   (S1) If β' is a V^n (n-place verb) with the set of n term-
         places K, $i \in K$, and if α' is a T (term), then
         $(\alpha', i)(\beta')$ is a V^{n-1} with the set of term-places
         $K-\{i\}$.

   (T1) If α'' is the translation of α' as a T, and
         $\lambda x_j \ldots x_m \beta'' (x_j, \ldots, x_m)$ with n places,
         the translation of β' as a V^n, then the translation
         of $(\alpha', i)(\beta)$ is

55

$$\lambda x_j \ldots x_i' \ 'x_i \ldots x_m(\alpha''(\lambda x_i(\beta''(x_j, \ldots, x_m)))),$$

with x_i' as the variable that precedes x_i and $'x_i$

as the variable that follows x_i.

4. The syntactic rule for the derivation of genitive

   attribute from a term expression looks like:

   If $\alpha \in P_T$, then $F_m(\alpha) \in P_{Nom^{n-1}/Nom^n}$, where $F_m(\alpha) = \alpha_{\langle T,2 \rangle}$ i.e., α is composed of genitive article and common noun. There is however, no semantic effect concerning the derivation of the genitive attributes from a term expression.

References

Bartsch, R. 1979. The Syntax and Semantics of Subordinate
Clause Constructions and Pronominal Coreference. Syntax
and Semantics 10:23-59. Academic Press. New York.

_____. 1981. Semantics and Syntax of Nominalization.
Formalmethods in the Study of Language. ed.by J.A.G.
Groenendijk et al. Mathematical Centre Tracts 135.
Amsterdam.

Carlson, Gregory N. 1977. Reference to kinds in English.
Doctoral dissertation. University of Massachusetts.

_____. 1977a. A Unified Analysis of the English
Bare Plural. Linguistics and Philosophy 1.3:413-56.

_____. 1979. Generics and Atemporal WHEN.
Linguistics and Philosophy 3.1:49-98.

Chomsky, N. 1970. Remarks on Nominalizations. Readings
       in English Transformational Grammar. eds. by R.A.
       Jacobs and P.S. Rosenbaum. 184-221. Waltham, Mas-
       sachusetts.

Downing, P. 1977. On the Creation and Use of English
       Compound Nouns. Language 53.4:810-842.

Dowty, David R. 1979. Word Meaning and Montague Grammar.
       Reidel, Dordrecht.

Fleischer, W. 1969. Wortbildung der deutschen Gegenwarts-
       sprache. Leipzig.

Lees, R. 1960. The Grammar of English Nominalization,
       Mouton. The Hague. 1966.

Levi, Judith N. 1978. The Syntax and Semantics of Complex
       Nominals. Academic Press. New York.

Montague, R. 1974. Formal Philosophy. ed. by R. Thomason.
       Yale University Press. New Haven.

Motsch, W. 1970. Analyse von Komposita mit zwei nominalen
       Elementen. Progress in Linguistics. hrsg.v. Bierwisch/
       Heidolph. Den Haag.

Shin, Soo Song. 1974. Transformationelle Untersuchungen zur
       Wortbildung auf -er im heutigen Deutsch. phil. Disser-
       tation. Heidelberg.

_____. 1981. Some Remarks on the Formation of German
       Noun-Noun Compounds. SICOL-1981:721-30. Linguistic Society
       of Korea.

_____. 1983. Einführung in die Deutsche Linquistik. Seoul. Hanshin Publishing Co.

Ullmer-Ehrich, V. 1977. Zur Syntax und Semantik von Substantivierungen im Deutschen. Kronberg/Ts.

Wunderlich, D. 1971. Warum die Darstellung von Nominalisierungen problematisch bleibt? Probleme und Fortschritte der Transformationsgrammatik. hrsg.v. D. Wunderlich, München.