The grammar of space: paths, points, and proforms

Haj Ross
Linguistics Department
University of North Texas
haj@unt.edu

1. Setting the Stage

The present paper is concerned with motion in general – but in particular, it is concerned with the syntactic and semantic structures which express the paths of moving elements¹. As an example of a complex path, let us examine (1):

(1) P------------------------A---------------------------T----------------------------H

Verb  (Source) (Trajectory) (Direction) (Distance) (Speed) (Totality) (Goal) (Mode)
I traveled from LA along Rt.1 northwards 450 miles at 60 all the way to SF on foot.

A first question that I will attempt to answer is this: are all of these eight constituents, or syntactic phrases, or “chunks” of the sentence, which can be found after motion verbs like travel, on the same level of the hierarchy of phrase structure? That is, should we postulate phrase-structure trees (or equivalent representations) like (2)?

(2) VP

V (Source) (Trajectory) (Direction) (Distance) (Speed) (Totality) (Goal) (Mode)

The way to “read” this syntactic “tree” is as follows: it says that verb phrases (VP’s) can be made up of one verb, optionally followed by a sequence of up to eight phrases which express various aspects of a path – where it starts, where it ends, how long it is, etc.

I would like to argue that this is not an adequate understanding of the interrelationships of the subconstituents of a path. As a first improvement, I suggest that we recognize an immense macroconstituent, which I will here refer to as Path, and that we say that predicates can select paths as one of their arguments, as long as one of their other arguments is a theme – Jeffrey Gruber’s fundamental and justly famous term for “that which moves” (Cf. Gruber (1976)). Some examples of themes of varying degrees of metaphoricity are exemplified by the underlined constituents in (3):

(3) a. Bonnie went to the races.
   b. I threw pieces of ham to the barracudas.
   c. Janet turned green.
   d. We gave our 30’s to Connie.
   e. Melchior learned multivariate analysis from Duane.

¹ To the best of my knowledge, the use of the term path originates with Len Talmy (Cf. Talmy (1975)).
f. Sharon revealed to Hunter that she was his control.

That is, I suggest that the way to describe go, for instance, in the lexicon, is to say that it occurs in the frame suggested in (4) [which is, of course, highly oversimplified. It says that go is a two-place relation, whose subject is a theme, and whose other term is a path]:

(4) \textit{go: [Theme } ____ \textit{Path]}

It should be apparent that such a statement captures an important generalization, to wit: for \textit{go}, all of the subconstituents which we see after \textit{traveled} in (i) are optional, so we find \textit{go} occurring with $2^8$ possible lexical frames, some of which are shown in (5):

(5) a. I went from LA.
b. I went along the coast.
c. I went towards the north.
d. I went 450 miles.
e. I went from LA along the coast.
f. I went from LA towards the north.
g. I went along the coast towards the north.
etc., etc., etc., etc.

It is also clear that without a generalized constituent such as Path, we would face the same sort of lengthy enumeration of sets of subcategorization frames on the model of (5) for other verbs of motion, such as \textit{travel, journey, voyage, drive, ride, walk}, etc., etc. Obviously, no such enumerative “solution” is tolerable – though the proposal I am making here – that of having all of these subconstituents as optional in the expansion of the Path node, as in (6a),

(6) a. Path $\rightarrow$ (Source) (Trajectory) (Direction) (Distance) (Speed) (Totality) (Goal) (Mode)

which translates to a tree structure such as (6b),

(6) b. 

\begin{center}
\begin{tikzpicture}
  \node {Path}
  \child {node {Source}}
  \child {node {Trajectory}}
  \child {node {Direction}}
  \child {node {Distance}}
  \child {node {Speed}}
  \child {node {Totality}}
  \child {node {Goal}}
  \child {node {Mode}}
\end{tikzpicture}
\end{center}

while attractive on the one hand, is clearly seriously wrong on an equally important other. The problem can be seen when we look in at the fine print in our study of the subcategorizations (that is, the listings of what kinds of constituents each verb must occur with) of verbs like \textit{walk}, or \textit{leave}, or . . . . The problem with \textit{walk} is that it takes (I believe) all possible combinations of path subconstituents \textbf{except} Mode, which must be omitted (cf. *(7a) [NB: a prefixed asterisk (*) before an example indicates that the sentence is ungrammatical, and a prefixed question mark that it is somewhat off]), unless we want to allow the redundant ?!(7b):
a. *I walked to San Francisco by bus.
b. ?I walked to San Francisco on foot.

The problem with leave is similar, though more serious: just as we must somehow specify that the subcategorization for verbs like walk, motor, trot, jet, etc. “includes,” to use a non-technical term, a particular value for the Mode subconstituent, so we must somehow specify that leave is “source-linked,” [whereas other verbs, like reach, will be specified as being goal-linked], a specification that will cause the preposition from, which normally marks all Sources, to be either absent or optional, for cases like (8) [note that I am by no means claiming that there are no other significant differences between the versions of (8a) with and without from, or between either of these and the use of leave in (8b)]:

(8)  
\[
\begin{align*}
\text{a. } & \text{We left (from) Mont Vernon in 1988.} \\
\text{b. } & \text{Liz left (*from) Richard several times.}
\end{align*}
\]

Moreover, leave does not allow for its Goal to be marked by to (or the related into and onto), which normally can appear before Goals. Instead, leave uses for, and suppresses constituents like Distance and Direction – cf. *(9):

(9)  
\[
\begin{align*}
\text{a. } & \text{We left Mont Vernon (*9000 miles) (*southwards) for Belo Horizonte in 1988.} \\
\text{b. } & \text{*We left Mont Vernon to Belo Horizonte in 1988.}
\end{align*}
\]

I know about such problems, but I propose, for the remainder of this paper, to fearlessly disregard them, since I have not yet found a decent solution to them, and since my focus is really on another area – the deepest and most basic structure of paths, and of the pro-adverbs – the elements which refer anaphorically to paths and to their subparts.

Having pointed out one fatal flaw in my analysis, let me now try to offset this by pointing out a virtue. Consider the class of sentences which can start with a locative or directional adverb, as in (10):

\[\text{Art Lindley has pointed out to me (personal communication) that there is one non-redundant Mode expression that can appear with walk in a sentence like (7b): on my hands. Other possible ones would be those in which feet was modified – on my bruised and aching feet, and so on. It thus seems evident that while it may be correct to say that what differentiates walk from go is that the former has some restrictions on Mode which the latter is free of, it will not be so simple to specify in detail exactly what these must be. I will leave it to the imagination of the interested reader to fill in these details, for they will not detract from the general point: individual lexical items that are hyponyms of go will vary from it with respect to the freedom with which they will be able to combine with Path subconstituents.}

\[\text{The notation “A *}(B) C” is a convenient shorthand for saying that a string ABC is grammatical, while a shortened form, AC, is not. The opposite notation, “A *(B) C,” means that AC is grammatical, while ABC is not. Thus an asterisk inside parentheses means that adding the parenthesized element(s) to a string produces an ungrammatical string; an asterisk outside parentheses means that subtracting the parenthesized element(s) from the string produces an ungrammatical string.}\]
(10)  a. On the table lay a machete.
    b. Up the slope dashed the yeti.

Many properties of such inverted sentences are well-known, such as the fact that they only work in the simple present or past, that they exclude negatives, etc. One fact which I believe not to have been called attention to is the fact that what occurs before the verb may be complex:

(11) **Out of the tent northwards along the ridge up to the glacier** dashed the yeti.

In my terms, what can be preposed is simply the entire path constituent, since all of the bold-faced elements in (11) would be analyzed as a path, as suggested by the rule in (6a). While other orderings are possible, in which some parts of the path precede and some follow the verb, such as those in (12), I find none so natural as the version in (11):

(12)  a. ?**Out of the tent up to the glacier** dashed the yeti
    b. ?**Northwards along the ridge** dashed the yeti **out of the tent up to the glacier**.

This suggests to me that there is some constituent which dominates the whole string *out of the tent northwards along the ridge up to the glacier* in (11) – but such a string, consisting as it does of a sequence of Source + Direction + Trajectory + Goal, is one example of an expansion of Path. If the metatheoretical principle can be maintained that only nodes can be moved (i.e., in this case, preposed to the beginning of the sentence), then such sentences as (11) provide some evidence for the correctness of postulating a node like Path.

But let me move on. I would like to suggest that is is useful to salientize three of the eight constituents to the right of the arrow in (6) – namely, source, trajectory, and goal – and group them together, giving them the common appellation of legs. For the present paper, I will leave out of my discussion of paths any further details in the analysis of the Mode and Speed subconstituents.

Let us note first that there is a serious flaw in (6), in that while it is impossible to have a repeated source or a repeated Goal in a path (cf. *(13)),

(13)  *Mike drove from LA from SF to Seattle.\(^4\)

\(^4\) Another extremely important observation of Art Lindley’s (likewise personal communication) is that it is possible to have more than one *from*-phrase, under the condition that what is being specified is finer and finer information about the exact location of a Source. Examples such as (i) are typical:

(i) Mike drove from LA from Santa Monica from Eleventh Helena Drive to Seattle.

We understand there to be a funnel of specificity, which grows ever narrower in such sequences of *from*-phrases. It is worth mentioning also that such “funneled” sequences also seem possible for Goal phrases, though often somewhat less so:

(ii) Mike drove to LA to Santa Monica to Eleventh Helena Drive.
it is definitely possible to have any number of Trajectories:

(14) Mike drove from LA [along Route 1] [through Santa Barbara] [past San Luis Obispo] [under the Route 241 viaduct] . . . to SF.

I would like to derive sentences like (15), which appear to have repeated Goals, from sentences like (16), which have repeated paths, though I have no evidence except meaning to support such an analysis at present.

(15) Mike drove from LA to SF to Seattle.

(16) Mike drove from LA to SF and from SF to Seattle.

I will leave the question of what to do with multiple goals open for the time being, but for now, let me suggest that the phrase-structure rule in (6) be replaced by something more along the lines of the ones in (17).

(17) a. Path $\rightarrow$ (Leg) $+$ Leg$^n$ $+$ (Leg) , n $\geq$ 0

    [+initial] [+medial] [+final]

b. Leg $\rightarrow$ (Extent) (Speed) (Direction) (PP)

Rule (17a) specifies that a path may start and end with at most one initial or final leg, but allows that there be any number of medial legs; rule (17b) specifies that each leg has the same basic structure. Each leg can end with a prepositional phrase (PP), i.e., a preposition followed by a noun phrase (NP), which can be preceded by various types of optional preceding modifiers.

I intend the first constituent of the expansion of Leg in (17b), namely Extent, to be a generalization of the notion of Distance, one which will cover Duration in Paths which describe motion through time, and which will cover prices, temperatures, pressures, etc., in paths through various other dimensions. The kinds of constituents that I would like to suggest are all instances of Extent are the boldfaced ones in (18) below.

(18) a. We drove (for) 26 miles, from Entrelacs to Rawdon.
    b. The concert went/lasted (for) seven hours, from 2AM to 9 AM.
    c. Prices rose (by) two dollars, from $16 per foot to $18 per foot.
    d. The temperature dropped (by) seven degrees to 170° below.
    e. The intercambical pressure shot up (by) 6 Ganymedan atmospheres to an all-time galactic high of 7122.3 kilozanucks per square quadzirc.

One fact which links all of these variants of the putative Extent constituents is the fact that all can be introduced by an optional preposition; another fact that may also be evidence of commonality of function is that when these constituents appear after Source or Goal phrases, the preposition for all of them becomes obligatory, as we see in (19):

(19) ai. We drove from Entrelacs to Rawdon *for 26 miles. (cf.

There are important issues to explore with respect to such nested Source and Goal phrases, but I will have to defer them to a more detailed treatment.
We drove to Rawdon from Entrelacs, *(for) 26 miles.

The concert went/lasted from 2 AM to 9 AM, *(for) seven hours.

Prices rose from $16 per foot to $18 per foot, *(by) two dollars.

The temperature dropped to 170° below, *(by) seven degrees.

The intercambical pressure shot up to an all-time galactic high of 7122.3 kilozánucks per square quadzirc, *(by) 6 Ganymedan atmospheres.

It would take me beyond the scope of this introductory report to discuss this interesting type of constituent in adequate detail; this too will have to await future research.

Further rules will specify that the prepositions for the leg-final prepositional phrases [or PP’s] for initial and final legs will be from (or [possibly] out of or off of) and to (or into or onto), respectively, and that other prepositions which are dominated by the PP of (17b) will be the subset of the standard set of locative/directional prepositions that is shown in (20):

\[
\text{(20) \quad above, across, along, among, behind, below, beneath, beside, between, by, in, near, on, over, past, through, under, underneath, upon, . . .}
\]

Prepositional complexes, like in front of, in back of, on top of, etc.; and inside (of) and outside (of), have a more complicated derivation, which I will have to leave for future study.

Let me first demonstrate the structural parallels between the three types of legs of a path. In (21), we see a path with three complex legs. I have indicated the analyses of the subparts of the legs below, to make the parallels stand out more clearly:

\[
\text{(21) \quad Sharon drove [45 miles extent \at 75 north speed \direction \PP from LA]}
\]

\[
\text{\quad [190 miles extent \at 65 northwest speed \PP along Route 1]}
\]

\[
\text{\quad [200 miles extent \at 55 northeast speed \PP to San Francisco].}
\]

In other words, what makes the three legs similar is the fact that they can all start with the complex of Extent + Speed + Direction.

We note that (spatial) extents can start with or without for, and that if for is not present, these extent phrases do not like to follow other constituents:

\[
\text{(22) \quad a. Michele drove [(for) 431 miles] \direction \PP towards the Yucatan peninsula].}
\]

\[
\text{\quad b. Michele drove \PP \direction \PP \extent \PP towards the Yucatan peninsula] [(for) 431 miles].}
\]
Mere disliking is gone far beyond when the extent constituent follows a Source or Goal phrase, as was pointed out in connection with (19) above:

\[(23)\]

a. Michele drove [(for) 431 miles] [at 45 miles per hour] [to Xaratacaxe].

b. Michele drove [to Xaratacaxe] [(for) 431 miles].

The fact that prepositionless extent-phrases are less freely postposed than they are with prepositions is an example of a familiar phenomenon in syntax: constituents often manifest freer word orders when they are long than when they are short. In English, post-verbal adverbs prefer the order Locative + Temporal when long (cf. (24)); they insist on this order when pronominal, as David Perlmutter has called to my attention (cf. (25)):

\[(24)\]

a. Sally lived [in Grenoble] [in 1965].

b. *Sally lived [in 1965] [in Grenoble].

\[(25)\]

a. Sally lived [there] [then].

b. *Sally lived [then] [there].

Of course, the prototypical case of ordering tightening up with shortening is that of clitic pronouns (like French *te* "you," as in *je te vois, "I see you") which are, I believe, always of more restricted mobility than are the lexical phrases to which they refer.

Another subconstituent of legs whose ordering tightens up as it gets shorter is Direction: the three progressively shorter directional phrases *towards the east, eastwards, and east* are more and more uncomfortable when they follow a PP, as we see in (26):

\[(26)\]

a. Randall jogged along the river *towards the east*.

b. *Randall jogged along the river eastwards.*

c. *Randall jogged along the river east.*

d. Randall jogged to San Francisco *towards the west.*

e. *Randall jogged to San Francisco westwards.*

Let me now extend the notion of path from its basic spatial sense to what is I believe its closest metaphorical neighbor: time. Compare (27) with (28):
In this preliminary note, I will not discuss in detail the changes that must be made as one moves from the dimension of space to that of time, nor those that are occasioned for paths in other dimensions. The most obvious ones are the change of units in the extent constituent, and we also find that certain constituents that can appear in spatial paths are not to be found in other dimensions. Mode is limited to space, and we find that in changing to temporal paths, we must drastically restrict the direction constituent: as far as I know, only up and down are available as direction-expressions in other dimensions (and in temporal paths, even down is generally disallowed). Moreover, there are prepositions that are linked to particular dimensions. Thus across, along, among, atop, behind, beneath, beside, by (in the sense of “by the side of”), goal-linked for (as in set out for Texas), onto and underneath can only appear in spatial paths, while since, during, and until [and till] are restricted to appearances in temporal paths in initial, medial, and final legs, respectively, and so on. Jackendoff’s discussion of some of the differences in the morphological means used to code paths in various dimensions, which draws on the pioneering work done a decade earlier by Gruber (cf. Gruber (1976)), is extremely clear (cf. Jackendoff (1976)).

2. **Right Here**

Let me move on into an extremely complex area, one which to my knowledge has never been studied at all, possibly because of the fact that it gives an initial impression of being totally straightforward. This has to do with the distribution of the locative/directional proforms there (and the deictic here), and with their corresponding wh-form where. The conclusions that I will arrive at will generalize to the temporal forms then, now, and when, respectively.

At first, one might think that there and where have identical distributions, but the following considerations will show that this idea cannot be maintained. The basic generalizations that I would like to argue for about there and here, on the one hand, versus where, on the other, are given in (29) and (30):

(29) There and here are found only as proforms for the objects of prepositions which occur in spatial paths; in particular, there and here can occur only in the Direction subconstituent of legs, or in the final PP of a leg.

(30) Where can occur only as the object of end-prepositions – that is, of those prepositions which occur in the leg-final PP’s of initial or final legs.
Examples of the kind of contrast which necessitates the differential treatment of *there*/here* and *where* can be found in (31).

(31)  
   a. Frieda hopped from the conduit. from there. from it.  
   b. Where did Frieda hop from?  
   c. Who hopped from where? (from = P_{end})  
   d. Frieda hopped along the conduit. along there. along it.  
   e. *Where did Frieda hop along?  
   f. *Who hopped along where? (along = P_{medial})  
   g. Frieda hopped to the conduit. to there. to it.  
   h. Where did Frieda hop to?  
   i. Who hopped to where? (to = P_{end})  

We see in (31b,c) and (31h,i) that *from*, an end-preposition from initial legs, and *to*, an end-preposition from final legs, allow *where*ing, while in (31e, f), we see that *along*, a medial preposition, excludes *where*.

It turns out that there are a number of differences between end-prepositions and medial ones, most of which I have at present scant understanding of. One difference is the behavior of *right*:

(32)  
   a. Frieda hopped from (right) there.  
   b. Frieda hopped along (*right) there.  

I take this difference in the possibility of modification by *right* to be an indication of a deep-seated semantactic (i.e., semantic/syntactic) distinction. I believe it to be correct to claim that the adverbial *right* can only occur as an introducer of prepositional phrases in paths. This will explain why we find such contrasts as those shown in (34):

(33)  
   a. She was sick (right) in the hospital.  
   b. She was interested (*right) in the hospital.  
   c. We meditated (right) on the divan.

---

5 I star *(32b)* with *right* only on the interpretation on which *[along there]* is interpreted as a constituent. But there is another, irrelevant (and for me, quite weak), reading, on which *along* has had its object deleted, where the meaning of the whole sentence would be roughly preserved if *right there* were to be clefted, as in *It was right there that Frieda hopped along.*

Another way of seeing the *-ness of *(32b)* is by preposing and inverting the Path constituent *along there*: *Along there hopped Frieda.* Note that now, *right* cannot be adjoined to *there.*

*Along (right) there hopped Frieda.*
d. We meditated (*right) on Transgalactic Infundibular Awareness.

Thus (33a) is acceptable, because the *in* is being used in a spatial sense, as opposed to the ungrammatical *(33b). Similar remarks apply with respect to the spatial *on* of (33c), by contrast to the non-spatial one in *(33d).

To be a bit more specific, *right* can modify any PP in a path except those of Extent or Mode, as we see from the contrasts in (34):

<table>
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<tr>
<th></th>
<th>source</th>
<th>goal</th>
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</thead>
<tbody>
<tr>
<td>a.</td>
<td>(right) from LA</td>
<td>(right) to Wallawalla.</td>
</tr>
<tr>
<td>b.</td>
<td>(right) through the town</td>
<td>(right) towards the 7-11.</td>
</tr>
<tr>
<td>c.</td>
<td>*(right) for three hundred miles.</td>
<td>mode</td>
</tr>
<tr>
<td>d.</td>
<td>*(right) on foot</td>
<td>*(right) by bus.</td>
</tr>
</tbody>
</table>

The fact that *right* cannot precede Totality (cf. *(35)) may be attributable to the fact that Totality constituents do not have the structure of prepositional phrases, in that they do not begin with a preposition:

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<th></th>
<th>totality</th>
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<tbody>
<tr>
<td>(35)</td>
<td>We drove [(right) partway] to Lac Cyprès.</td>
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</tbody>
</table>

I offer such an account very half-heartedly, for we do find *right* before words like *home*, which look like anything but PP’s:

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<tr>
<td>(36)</td>
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The case of Speed subconstituents of paths is extremely interesting: they can be preceded by *right* (cf. (37)),

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<td>(37)</td>
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which may suggest that speed is a dimension, with the measure phrase *75 mph* marking a point on the axis of this dimension. If this were all there were to say, we might then expect *there* to be possible. But it is not, in general:

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<tr>
<td>(38)</td>
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Nonetheless, in some contexts, *there* can replace Speed constituents:

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<tbody>
<tr>
<td>(39)</td>
<td>I started off driving the Ford at 75, and I kept it there for six hours.</td>
</tr>
<tr>
<td></td>
<td>We revved her up to 55, and from there we zoomed up to 79.</td>
</tr>
</tbody>
</table>

At present, I do not understand what it is that distinguishes those cases in which Speed constituents can be replaced by *there* from those in which it cannot – yet another problem for future research.

The preceding discussion shows that there are problems with the claim that all PP’s in paths can be preceded by *right* – how about the opposite implication: that only PP’s in paths can be? To maintain this generalization, we will have to descend several levels of abstraction. First of all, we will have to postulate the existence of
temporal paths, as was suggested in the comparison of (27) and (28), for we find that right can precede temporal PP’s as well as spatial ones:

(40)  
(a) Mike worked (right) from 9 AM (right) through the morning (right) until noon.  
(b) Santa has stayed here (right) since Christmas.

A fascinating avenue for future work will be the exploration of what are the other types of paths which allow their subconstituents to be modified by right. As we see in (41), changes in temperature, price, pressure, area, etc. permit such modifications:

(41)  
(a) The thermometer shot up (right) from 32° (right) to 99°.  
(b) Mangos dropped (right) from $32/gram (right) to $15/gram.  
(c) We should increase the pressure (right) to 45 pounds/cm².  
(d) The size of the hole in the ionosphere went (right) through 45 billion square kilometers (right) to 76 billion square kilometers.

However, many complex problems soon crop up. First, there are more senses of right than just one. While the primary sense of right in (43a) for me is a spatial one, paraphrasable (poorly – spatial right is a word I find hard to discover synonyms for) as something like one of the variants of (42b), there is also a temporal sense available, as shown in the paraphrase in (42c):

(42)  
(a) Jenny walked right into the cave.  
(b) Jenny walked all the way/smack/spang/dead into the cave, to the very middle of the cave.  
(c) Jenny walked into the cave right away/immediately.

What happens is that when the path architecture has been extended metaphorically far enough from its spatial core, right ceases to have its spatial sense, and admits only the temporal sense of “right away”. For me, this is already the case with respect to the metamorphosis sense of into:

(43)  
(a) The caterpillar will turn right into a butterfly.  
(b) I moulded the clay right into a pot.

For some reason, the metamorphosis sense of out of seems to allow right to have a sense much like its (43b) sense – (44) is ambiguous for me:

(44)  
I carved an ashtray right out of the piece of balsa.

Not all into’s allow the “right away” sense – (45) does not:

(45)  
We had to translate the manuscript from Coptic right into French.

For me, this right has the sense of “directly, without any intermediate stop,” but does not allow the “right away” sense.

And there are other senses of right: in (46a), we see a meaning which can be roughly paraphrased by “all the way,” a meaning which emerges even more clearly with around in its use as a particle, as in (46b):
(46) a. We drove right around the lake.
   b. The gust turned him right around.

For any idiolect in which such judgements are shared, the question arises as to why the “spaces” of temperature, price, pressure, etc., of (41) are close enough to the basic sense of right to allow its use with them, while the “space” of languages (in (45)) is not close enough. And under what circumstances does a basically spatial preposition like into move so far away from its basic sense that there is no sense of right which can combine with it? Such is the case, for me, with the examples in (47), though others may perhaps find some of them acceptable:

(47) a. He provoked me (*right) into a fight with Deirdre.
    b. We were shocked (*right) into silence.
    c. They may worry themselves (*right) into a decline.
    d. I was pressured (*right) into signing.

All of these problems with the distribution and meaning(s) of right fade away (?right) into insignificance when we start to examine the uses of right with particles:

(48) a. I can look that (right) up.
    b. She faded (right) away.
    c. She chattered (*right) away happily.
    d. Professor Zenith explained these phenomena (right) away.

My estimate is that it will take several book-length studies to document the distribution of right and begin to formulate theories of how it extends syntactically and semantically from its basic spatial sense, which I take to be that suggested by the paraphrases in (42b), to its derived senses in (43) – (46) and (48). I cannot undertake any such major project within the scope of the present paper; for my present purposes, then, let me return to the minimal syntactic hypothesis that was proposed above for the distribution of right in spatial and temporal paths:

(49) Right can only precede a prepositional phrase in a path.

If this idea can be maintained (and there are many problems with it), it will necessitate that we postulate different sources for the there which can follow end-prepositions and the there which follows medial prepositions. I suggest that a path phrase like from the tower to the lighthouse derives from a remote structure in which each end-preposition is followed by a PP – in this case, one introduced by at. It is possible to actually see these at’s, if some word intervenes between them and the end-preposition which precedes them:

(50) a. from right at the tower to down at the lighthouse
    b. from over at the tower to up at the lighthouse

Since the at-PP’s which are the deep objects of from and to are parts of spatial paths, their objects can be pronominalized by there, just as the object of a medial preposition can be. However, the result of such thereing is ungrammatical, for another rule must apply:

(51) a. *from right at there to down at there
    b. *from over at there to right at there
However, since the sequence *at there is always ill-formed, an observation which I owe to Paul Postal, I propose that a rule of At Zap obligatorily removes these at's. I give a preliminary formulation of this rule in (52):

\[
\textbf{At Zap}
\]

\[
X - [ \text{at-there }]_{\text{pp}} - Y
\]

\[
\begin{array}{cccc}
1 & 2 & 3 & 4 \\
1 & 0 & 3 & 4
\end{array}
\]

Thus (52) converts *(51) to the grammatical (53):

(53)

a. from right there to down there
b. from over there to right there

The rule must be formulated in a much more general way, for at is prohibited not only before there, but also before here, in the spatial realm, and before then and now, in the temporal one, as we see in (54):

(54)

a. from up at 22,000 meters / from up (*at) here
b. from right at 10:01 / from right (*at) now
c. to right at 10:06 / to right (*at) then

In addition, there are other types of spatial and temporal adverbs, based on the semantically bleached nouns place (or its equivalent wb-word-based combining form, -where) and time, which cannot be preceded by at, in the event that they are modified by certain types of incorporated determiners, as we see in (55) and (56):

(55)

a. Franny is at that place / (*at) someplace / (*at) somewhere.
b. Franny is (*at) no place close by / (*at) nowhere close by.
c. Franny is not (*at) anyplace close by / not (*at) anywhere close by.
d. There were spiders at that place / (*at) everywhere.

(56)

a. The concert will be at that time / (*at) sometime in the future.
b. The concert will be (*at) no time soon.
c. The concert will not be (*at) anytime soon.

Thus we see that a more nearly complete formulation of the needed rule will have to delete at before spatial and temporal NP's, of two types: deictics and non-specific indefinites, given that the head nouns of these NP's are the bound forms -place, -where, or -time. These forms are of course related to the equally bound, and semantically bleached, heads of such non-specific indefinite forms as (some / no / any / every) + (one / -body / -thing). Finally, though I cannot go into such complexities in the present context, it is also that case that the rule in question will have to delete other prepositions than just at. As the sentences in (57) suggest, minimally, in certain spatial contexts, the rule will also have to be able to delete the prepositions to, in, and on, sometimes optionally, and other times obligatorily.

(57)

a. Take him to that place / (*to) there / (to) someplace droll / (to) somewhere droll.
b. We drove (to) no place dangerous / (to) nowhere dangerous.
c. They don't want to go (*to) anyplace / (*to) anywhere.
d. Stuff it in that place / (?in) there / (?in) someplace safe / (*in) somewhere safe.
e. Glue them on that place / (on) there / (?on) someplace / (*on) everyplace flat.

This rule is influenced by many factors, most of which I can only perceive exceedingly dimly. I will not attempt any more adequate formal statement that the hopelessly preliminary version in (52), which I offer as a kind of a down payment on the rule or perhaps, on a rich family of rules, which the discussion above has hinted will someday have to be formulated with rigor. To give it or them a name, though, when necessary I will refer to Non-specific Adverbial Deprepositionalization, or (slightly) more catchily, as Adverbial DePing.

However, we are not yet out of the woods: there are other excrescent *at's. What would happen if we had a structure like that of (50), except that there were no words like *right, *down, *over, etc. between the end prepositions and the following *at-phrases? What would happen to something like (57)?

(57)  a. *from at the tower to at the lighthouse
b. *from at the tower to at the lighthouse

Recall that I am postulating that end-prepositions like *from and *to are followed in deep structure by PP’s for two reasons: to explain the possibility of end-prepositions being followed by *right, and to account for the possibility of occurrence of *at in end-prepositional phrases, if this preposition is preceded by some intervening word like *up, *down, *over, *right, etc. Observe also that it is not only with a following deep *at that such structures are encountered, but with many locative prepositions, which need not be preceded by words like *right, *up, *on, etc., as *at must, if it is to surface:

(58)  a. from [behind the tower]_{pp} to [by the lighthouse]_{pp}
b. from [beside the tower]_{pp} to [around the lighthouse]_{pp}
c. from [on the tower]_{pp} to [in the lighthouse]_{pp}
d. from [along the pier]_{pp} to [under the overpass]_{pp}

The constituents following *from and *to in such sentences are clearly PP’s, as indicated by the subscripting on the brackets which surround them. However, since such PP “objects” of end-prepositions can be preceded by *right, *up, *in, and words like them, as we see in (59),

(59)  a. from [right [behind the tower]_{pp}] to [down [by the dock]_{pp}]
b. from [over [beside the tower]_{pp}] to [up [around the barn]_{pp}]
c. from [right [on the tower]_{pp}] to [down [in the cave]_{pp}]
d. from [over [along the pier]_{pp}] to [in [under the overpass]_{pp}]

the question arises as to what the expanded sequence containing modifiers like *right, *up, *in, *over, etc. plus this PP should be dominated by [thus I have left the curly brackets in (60) without subscripts]. At present, I have no reason to think that they should be anything other than other instances of PP, though I have little evidence
that this assumption is correct. As far as I can see, nothing rides thereon, so until I find something which would indicate that some other structure is required, I will assume structures like (60) for (59a):

Thus I am suggesting that the deep syntax of end-PPs differs from that of medial PP’s. End-prepositions are always followed by PP’s (though if the preposition of this PP is at, it may become invisible, through the operation of Adverbial DePing). By contrast, medial PP’s consist of a simple preposition with its following NP. This helps to explain why there are many ungrammatical sequences of prepositions which start with medial prepositions, as was observed in connection with (33b):

A word of warning: there is a class of sentences which may appear to contradict the claim that medial prepositions cannot be followed by PP’s. Consider the examples in (62), whose boldface prepositions are all medial ones:

I want to argue that such sentences should not be treated as counterexemplifying the claim that medial prepositions can never have “PP objects.” In fact, I would argue, the bracketed PP’s which follow these boldface P’s are not even in the same constituent with them. Rather, the medial preposition represents a medial leg, all by itself, with the following PP representing a final leg. Let me first indicate how it can come about that a medial leg can come to consist of just one preposition.

In his thesis, in 1965, Bruce Fraser suggested, for the first time anywhere, to the best of my knowledge, the existence of a transformational process of anaphoric

---

6 Cf. Fraser (1965).
deletion, which would operate to delete a prepositional phrase, under two conditions: (a) the object of the preposition was identical to another NP in the sentence, and (b) the prepositional phrase to be deleted was immediately to the right of another preposition. In (63), I have given some examples of the kind of anaphoric reductions which Fraser had in mind.

(63) a. This tower is nice and high – let’s elbow Granny off [of it] \( \Rightarrow \)
    a’. This tower is nice and high – let’s elbow Granny off \( \bigcirc \).
    b. Our house is so warm – shall we let the goats in [to it] \( \Rightarrow \)
    b’. Our house is so warm – shall we let the goats in \( \bigcirc \).

Fraser was interested in this process of ellipsis because he was studying verb particles (the boldface, prepositionoid, words associated with verbs in such phrasal verbs as jolly along, bandy about, egg on, take apart, knee back, etc.). Particles can show up on either side of the NP’s which follow verbs:

(64) a. I want to egg on all of those idiots.
    b. I want to egg all of those idiots on.

and Fraser noted that the reduced directional phrases in (63a’, b’) also could be moved leftwards, to immediately follow their verbs:

(65) a”. This tower is nice and high – let’s elbow off Granny.
    b”. Our house is so warm – shall we let in the goats ?

However, since there were a number of respects in which particles and reduced directional phrases were different (for example, the latter could conjoin: Let the goats in and out, while the former could not: *Think an example up and over.), Fraser wanted to propose distinct sources for them.

He was concerned originally only with the prepositionoids which follow transitive verbs, but I think that he would see as being completely natural the extension of his rule to cases in which directional phrases follow intransitives, as is the case in (66):

(66) a. This tower is nice and high – let’s jump off [of it] \( \bigcirc \).
    a’. This tower is nice and high – let’s jump off \( \bigcirc \).
    b. Our house is so warm – shall we dart in [to it] \( \bigcirc ? \)
    b’. Our house is so warm – shall we dart in \( \bigcirc \).

There is, however, another class of cases, not considered by Fraser, I believe, in which the second of the two conditions is not met:

(67) a. The tunnel is so long – can the car pull the safe through it? \( \Rightarrow \)
    a’. The tunnel is so long – can the car pull the safe through \( \bigcirc \).
    b. The Snobbe’s mansion is so grand – let’s push our car past it. \( \Rightarrow \)
    b’. The Snobbe’s mansion is so grand – let’s push our car past \( \bigcirc \).

The reduced medial phrases which arise from the operation of this rule are not acceptable, unless followed by a clearly marked pause, when moved to a position immediately following the verb:

(68) a”. ?*The tunnel is so long – can the car pull through the safe?
b". *The Snobbe’s mansion is so grand – let’s push past our car.

At present, I suspect that it will be possible to collapse Fraser’s original process of transformational elision with the one which is operative in (67). However, whether or not this surmise proves to be correct is not really at issue here. For purposes of discussion, let us assume that it is, and agree to call the process Path Shortening, leaving the details of its formulation and interaction with other processes to future grammarians, lucky devils.

For our purposes here, it is enough to note that Path Shortening provides us with a way of understanding what is going on in cases like (62), which I repeat for convenience:

(62) a. Bugsy went **through** [into the vault].
    b. The flatfeet zoomed **along** [to the plaza]_{PP}.
    c. Journalists galloped **by** [into the crowd]_{PP}, trying for a scoop.

I suggest that the boldfaced medial prepositions here have all been produced by Path Shortening – their direct objects, having been deleted, are symbolized by “Ø” below. Thus each of the verbs of (62) is followed by a sequence of two legs – a (reduced) medial one, and a PP final one, as shown in (69):

(69) a. Bugsy went [through Ø]_{PP} [into the vault]_{PP}.
    b. The flatfeet zoomed [along Ø]_{PP} [to the plaza]_{PP}.
    c. Journalists galloped [by Ø]_{PP} [into the crowd]_{PP}, trying for a scoop.

By contrast, such examples as (70) will be analyzed as having their verbs followed by only one leg – a final one.

(70) a. Terry jumped [from Ø]_{PP} [behind the scarecrow]_{PP}.
    b. Mary zoomed [to Ø]_{PP} [under the viaduct]_{PP}.

This analysis thus explains why it is impossible to prepose the words *from* and *to* in sentences like (70) – trying to do so produces the refreshingly ungrammatical *(71):

(71) a. *From jumped Terry [Ø [behind the scarecrow]_{PP}.
    b. *To zoomed Mary [Ø [under the viaduct]_{PP}.
The reason that *from* and *to* will not prepose is that no isolated preposition ever will prepose away from its object – cf. examples like (72):

(72)  

\(a\). Mike rapped [*about the feds]*.  
\(b\). *About rapped Mike [*Ø the feds]*.

By contrast, it is (sometimes) possible to prepose the reduced medial legs of examples like (70), as we see in (73):

(73)  

\(a\). ?[ *Through* Ø ] *went Bugsy* [*into the vault]*. 
\(b\). ?[ *Along* Ø ] *zoomed the flatfeet* [*to the plaza]*. 
\(c\). *[ *Past* Ø ] *galloped journalists* [*into the crowd*], trying for a scoop.

I have no explanation to propose for the fact that the two roughly synonymous medial prepositions, *by* and *past*, produce ungrammatical sentences like* (73c) when reduced and preposed. Still, the fact that some words like *through* and *along* can prepose, in the face of the complete unpreposability of any garden-variety preposition, suggests strongly the need for some difference in structure between the two classes of cases.

There is a further distinction in syntactic behavior which may be explainable on the basis of the proposed differences in constituent structure. The complex final legs of examples like (70) can be preposed in one piece in the forming of the type of relative pronouns that we see in (74):

(74)  

\(a\). The scarecrow [*from* [*behind which*]] *Terry jumped was wearing designer jeans.* 
\(b\). The viaduct [*to* [*under which*]] *Mary zoomed had unfortunately been mined by the Front for Intestinal Liberation.*

This behavior is predicted, given the description of pied piping in (Ross (1986)), under the analysis in which the relative pronouns are contained in one PP which is a subconstituent of a larger PP. But now note that there is no possibility of pied piping in the relativization of examples like those in (70), as we see in the double-prime sentences in (75):

(75)  

\(a\). The vault [*with* [*through* ] ] *was full.*  
\(a'\). *The vault [*into which* ] *was full.*  
\(a''\). *The vault [*through* ] *Bugsy went* was full.
b. The plaza which the flatfeet zoomed [\textit{along }]_{pp} [to \emptyset]_{pp} was big.

b'. *The plaza \textit{[to which] the flatfeet zoomed [along]}_{pp} \emptyset \textit{was big.}

b''. *The plaza \textit{[along]}_{pp} \textit{[to which] the flatfeet zoomed} \emptyset \textit{was big.}

c. The crowd which journalists galloped \textit{[by]}_{pp} \textit{[into \emptyset]}_{pp}, trying for a scoop, was unruly.

c'. *The crowd \textit{[into which]}_{pp} journalists galloped \textit{[by]}_{pp} \emptyset, trying for a scoop, was unruly.

c''. *The crowd \textit{[by]}_{pp} \textit{[into which] journalists galloped} \emptyset, trying for a scoop, was unruly.

The examples in (75a,b,c) show that relativization is not in general prohibited out of path structures. I believe that the problem with the examples in (75a',b',c') is connected with a constraint mentioned in Ross (op. cit. – cf. pp. 134-135), which blocks the pied piping of prepositions when the PP to be moved follows an idiomatic construction, consisting of a verb and one other constituent. This constraint will allow relative clauses like those in (76a,b,c) (in which the sequence of verb plus idiomatic constituent has been boldfaced), while blocking those in (76a',b',c').

(76) a. The abuse which I had to \textit{put up with} \emptyset \textit{was phenomenal.}

a'. *The abuse with which I had to \textit{put up} \emptyset \textit{was phenomenal.}

b. The rope which I \textit{let go of} \emptyset \textit{was oily.}

b'. *The rope of which I \textit{let go} \emptyset \textit{was oily.}

c. The plot which \textit{we got wind of} \emptyset \textit{was dastardly.}

c'. *The plot of which we \textit{got wind} \emptyset \textit{was dastardly.}

I will not pursue this possible account here, due to limitations of space.

Rather, let me summarize. I have been trying to make a case that there is a difference in structure between sentences like those in (69) and like those in (70), both of which examples I repeat for convenience:

(69) a. Bugsy went \textit{[through]}_{pp} \textit{[into the vault]}_{pp}.

b. The flatfeet zoomed \textit{[along]}_{pp} \textit{[to the plaza]}_{pp}.

c. Journalists galloped \textit{[by]}_{pp} \textit{[into the crowd]}_{pp}, trying for a
The two differences that I called attention to were the fact that the boldfaced prepositions of (69a,b) can (sometimes) be preposed, while the \textit{from} and \textit{to} of (70) never can; and the fact that the complex final legs of (70) can be pied-piped, while the sequence of legs in (69) cannot be. The discussion of this contrast in the two cases was necessitated in order to remove a class of apparent counterexamples to my claim above, in connection with *(62b), that medial prepositions can never have “PP objects,” as \textit{from} and \textit{to} can.

Recall that in this section, I am attempting to account for the distribution of adverbial proforms like \textit{there} (and \textit{then}), and of the constituents which can modify them. I am proposing in essence that there are two kinds of environments in which such adverbial proforms appear: NP, or “noun phrase,” environments, and PP environments. The former types of \textit{there} [which I will refer to as “NP-\textit{there}”] occur after spatial prepositions, which can never form a surface constituent with a following PP, and directly after certain verbs, some of which can manifest a prepositional object. The latter type of \textit{there} [which I will refer to as “PP-\textit{there}”] is found after end-prepositions, and in certain other environments, to be described shortly. The table below shows the two types diagrammatically.

\begin{tabular}{lll}
\textbf{(77)} & \textbf{NP-\textit{there}} & \textbf{PP-\textit{there}} \\
\hline
\textit{a}. & They are behind (*under) there. & He leapt from (under) there. \\
 & We departed (*under) there. & We departed from (under) there. \\
\textit{b}. & They are behind (*right) there. & He leapt from (right) there. \\
 & We departed (*right) there. & We departed from (right) there. \\
\textit{c}. & They are behind (*down) there. & He leapt from (down) there. \\
 & We departed (*down) there. & We departed from (down) there. \\
\textit{d}. & *Where are they in? & Where did he leap from? \\
 & *Where did we depart? & Where did we depart from? \\
\end{tabular}

(77) summarizes the major points we have touched on above: the two types of environment, the first relatable more closely to NP’s, the second more closely to PP’s, manifest differences in behavior with respect to whether they can be followed in surface structure by a PP (77a); whether their \textit{there’s} can be preceded by \textit{right} (77b); or by “directors,” like \textit{up / down, in/ out, on/ off}, etc. (77c); and whether their \textit{there’s} can be \textit{where}ed or not (77d). I wish to argue that the last three of these differences in behavior are due to the presence, after the end-prepositions \textit{from} and \textit{to}, of an underlying \textit{at}, which then must be deleted, by the following rule:
I have formulated this rule so that it will apply to more prepositions than just at, for (79) and (80) suggest that in and on are the prepositions which should be postulated to occur in deep structure in their c-versions:

(79)  a. from over in Kansas to up in Wisconsin
    b. *from in Kansas to in Wisconsin
    c. from Kansas to Wisconsin

(80)  a. from over on the tabletop to up on the counter
    b. ?* from on the tabletop to on the counter
    c. from the tabletop to the counter

There is a fundamental generalization about the use of locative prepositions, which I owe to Thomas Ronald Hofmann (personal communication). He suggests that prototypically, at is used with objects which are conceptualized as being of zero-dimensionality (at the intersection, at this point, etc.), on with objects of one dimension (on Broadway, on the river, on the street, etc.), and in with objects of two or more dimensions (in the field, in the cave, etc.). Hofmann’s hypothesis, which I think is basically correct, though too complex to take up in detail here, is that in certain circumstances, at, on, and in are to be seen as allomorphs of an abstract spatial preposition, variant forms whose distribution is determined by features of their object. We might refer to this preposition as a kind of “generic” locator, and symbolize it as \( P^* \). A good example which supports Hofmann’s idea can be seen in the prepositions which accompany the temporal adverbs which are based on time units of increasing size. The smallest units (such as second, minute, moment) occur with at, while days and parts of them (e.g., morning, afternoon, evening, etc.) go with on. Everything larger goes with in. And all of these three prepositions (or, I would say, with Hofmann, “all of these alloforms of the temporal variant of \( P^* \)” can be deleted, under similar conditions. Cf. (81) - (83).

(81)  a. I cannot help you *(at) this moment.
    b. I will help you (at) the moment that the banks open.
    c. I will help you *(at) a moment when I have found my checkbook.

(82)  a. I cannot help you *(on) this morning.
    b. I will help you (on) the morning that you return from Cairo.
    c. I will help you *(on) a morning when I have found my checkbook.

(83)  a. I cannot help you *(in) this year.
    b. I will help you (in) the year that you return from Cairo.
c. I will help you *(in) a year when I have found my checkbook.

It is because of examples like these that I have formulated the rule of End-Leg Shortening so that it will operate in such a way as to delete more prepositions than just at.

3. To Get to the Point

There is one nagging inelegance in the analysis which I have sketched in the foregoing sections. It is that all prepositions in paths have a single type of objects – namely, NP’s – except for the two end-prepositions, from and to. These two I have proposed to analyze as accepting either of two possible deep objects: NP’s, like all other prepositions in the language, or spatial PP’s. Something there is which doesn’t like disjunctive specifications; is there nothing better which we can propose?

It is of course necessary to account for all the ways in which we have seen the end-prepositions to differ in their behavior from that of other prepositions – but postulating that a deep PP, which loses its preposition via End-Leg Shortening, goes a long way towards that goal. What I would like to suggest is that the disjunctive specification be banished by specifying that from and to have not only NP objects, like all other prepositions, but in addition, that their object NP can have only one head noun: point. Thus (84b) will underlie (84a), via the operation of the rule stated in (85).

(84) a. Mr. Springblatt leapt from a point behind the divan.
    b. Mr. Springblatt leapt from Ø behind the divan.

(85) Disappointment

\[
X \rightarrow [ \text{from} - [ [ \text{a point} ] NP - \text{PP} ]_{NP} \text{PP} - Y \\
\text{to} \quad \text{Ø} \quad \text{points}]
\]

\[
1 \rightarrow 2 \quad 3 \quad 4 \quad Y \quad \text{OPT}
\]

\[
1 \rightarrow 2 \quad \text{Ø} \quad 4 \quad Y
\]

The rule is stated in such a way as to delete either a singular or a plural indefinite NP whose head is the noun point. I have formulated it in this way in order to allow for derivations such as those in (86) to go through:

(86) a. The police converged on the gang from points around the bar.
    b. The police converged on the gang from Ø around the bar.
    c. The surfers swam to their boards from points along the beach.
    d. The surfers swam to their boards from Ø along the beach.

There is an interesting gap on the distribution of prepositions which can follow end-prepositions: in general, through is excluded (cf. (87)):

(87) * They ran from through the field to over by the barn.
Thus the contrast between the grammatical examples in (86) and the ungrammatical *(87) is exactly repeated in the distribution of prepositions that can follow the head noun point(s) as a subject:

(88)  
   a. The points were around the bar.  
   b. The points were along the beach.  
   c. *The points were through the field.

Interestingly, there is a wrinkle on a wrinkle in this distribution: a through-phrase can follow a points subject, but only if the through is preceded by the quantificational particle all:

(89) The points were *(all) through the field.

Significantly, as an analysis based on Disappointment would predict, the ungrammatical *(87) becomes grammatical with the insertion of all:

(90) They ran from all through the field to over by the barn.

There is a fundamental array of facts in the background of my claim that end-prepositions are followed in deep structure only by point. For what becomes obvious, if one begins to study the kinds of nouns which are possible after each preposition, is a double dependency. First, some nouns select the prepositions which they want to be the objects of (some of the kinds of contrasts which emerge for cases like this can be seen in (91) – (94)).

(91)  
   a. in the space between the cat and the bike  
   b. ?? within the space between the cat and the bike  
   c. * inside (of) the space between the cat and the bike  
   d. * (up) on the space between the cat and the bike  
   e. * [behind / in front of] the space between the cat and the bike  
   f. * beside the space between the cat and the bike  
   g. * [over / under] the space between the cat and the bike  
   h. * to [the left / right] of the space between the cat and the bike  
   i. * near the space between the cat and the bike  
   j. * along the space between the cat and the bike  
   k. through the space between the cat and the bike

(92)  
   a. in the interior of the box  
   b. ?? within the interior of the box  
   c. * inside (of) the interior of the box  
   d. * (up) on the interior of the box  
   e. * [behind / in front of] the interior of the box  
   f. * beside the interior of the box  
   g. * [over / under] the interior of the box  
   h. * to [the left / right] of the interior of the box  
   i. * near the interior of the box  
   j. * along the interior of the box  
   k. through the interior of the box

(93)  
   a. * in the tabletop  
   b. * within the tabletop  
   c. * inside (of) the tabletop  
   d. (up) on the tabletop
e. * [behind / in front of] the tabletop
f. * beside the tabletop
g. * [over / under] the tabletop
h. * to the [left / right] of the tabletop
i. * near the tabletop
j. along the tabletop
k. ? through the tabletop

(94) a. * in the US–Canada border
b. * within the US–Canada border
c. * inside (of) the US–Canada border
di. on the US–Canada border
dii. * upon the US–Canada border
e. * [behind / in front of] the US–Canada border
f. * beside the US–Canada border
g. ? * [over / under] the US–Canada border
h. to the left / right of the US–Canada border
i. near the US–Canada border
j. along the US–Canada border
k. through the US–Canada border

Glossing over details, what we begin to see is that there are nouns which, if they are to appear as the object of a preposition in a path, will do so only with certain prepositions. Probably *space* and *interior* are the clearest of these; they allow basically only *in* to precede them in paths, and *through*, in medial legs (though of course in non-paths, much more is possible: *[about / concerning] the interior of the box, satisfied with the space between the cat and the bike*, etc.). Also fairly clear are nouns like *tabletop* – unless they are conceived of as physical objects, made of some material, and therefore having some thickness (in which case, all of the examples in (94) become acceptable), such nouns which denote surfaces, like the noun *surface* itself, occur basically only with *on* (though (94) shows that nouns of surface can be conceptualized as containing sequences of points, which is what prepositions like *along* require. It would be convenient to be able to say that linear nouns, like *boundary*, *frontier*, *route*, etc. only occur with *on* (in cases which refer to a point in the line), or *along* (for cases which refer to the whole sequence of points which makes up the line). But alas, things are not quite that simple, as (94h, i) show, for the line itself can be located against a wider background, within which concepts like nearness and left-right orientation can acquire meaning.

Now let us examine, in passing, the prepositional contexts in which *point* likes to occur.

(95) a. [from / to] that point
b. towards that point
c. at that point
d. * (with)in that point [ungrammatical in point’s spatial sense]
ei. * on that point [ungrammatical in point’s spatial sense]
eii. * upon that point [ungrammatical in point’s spatial sense]
f. * [over / under] that point
g. * [above / below] that point
h. * beside that point
i. near that point
j. through that point
k. around that point
l. * along that point
m. * across that point

It is not easy to characterize the set of prepositions which are grammatical when followed by point, nor those which are ungrammatical. I will not attempt either task here, but will instead turn to illustrating the opposite type of dependency — that which a preposition imposes upon the noun which occurs as its object.

This phenomenon is a bit trickier to get a hold of than was the previously discussed one. It is often not the case that a preposition will exclude a following noun; rather, the preposition becomes something like a pair of goggles with which to view the noun in question. An example may help to make this point clearer. If we take as a starting point for our investigation the distinctions drawn by Ron Hofmann (cf. the discussion above in connection with P*), we recall that in generally goes with nouns of two or more dimensions: in the field (two dimensions), in the room (three dimensions). I would like to draw a finer distinction here, and say that though it is true that in can sometimes appear with two-dimensional nouns, this is not always the case, and that prototypically, this preposition should be seen as taking a three-dimensional object. While I do not have the space to argue for this claim in detail here, note the existence of two-dimensional nouns which are strange with in:

\[(96)\]

a. * in the tabletop
b. ? There's a hole in this spot.
c. ? in the flag
d. ? in the landing strip
e. ? There's a dot in this Scotch tape

I would like to say that in has the effect of “volumizing” its object — of informing the hearer that for the purposes of the discussion at hand in the discourse, the speaker wants the object to be seen as (if it were) a three-dimensional bounded area. And in a similar way, on “surfazizes” its object — it says to the hearer that the surface, preferentially the superior surface, as in on the table, is the aspect of the object of on which is relevant for the locating which the ongoing discourse is concerned with effecting. And in the same way, at “pointizes” its object, along “linearizes” it, and so on. When, because of the geometrical givens of the object, a particular noun cannot be seen in the way that the preposition in question requires, then anomaly results, as we have already seen in the starred examples of (92) (interiors can’t be seen to have surfaces, and therefore don’t support lines), or of (93) (boundaries can’t be seen as having interiors), or of (95) (points can’t be seen as having bottoms *(95f), or sides *(95b), or interiors *(95d), or as containing lines *(95l)), and so on. I will interrupt this brief sketch here, and refer the interested reader to Talmy’s deep and insightful discussion of many of the same points (cf. Talmy (1983)).

What’s the point? Simply that from and to are also pointizers. The difference between them and the other pointizing prepositions that I know about — namely, towards and at — is that it is only following from and to that Disappointment works for all speakers. Thus while (97a) and (97b) can be shortened via this rule, and while (97c) may perhaps be shortenable for some speakers (though not very well for me — the “%” prefix on (97cii) indicates that only some speakers will accept this phrase), I believe that (97di) does not allow the operation of Disappointment in any dialects whatsoever.

\[(97)\]

ai. from a point behind the sofa
aii. from Ø behind the sofa
bi. to a point behind the sofa
bii. to Ø behind the sofa
My discussion has focused thus far on spatial paths, and thus on the distribution of words like here, there, and where. Let me show now, briefly, how the points made above will extend, mutatis, as always, mutandis, to temporal paths.

There exists an exact parallel for the words then and when in the temporal dimension. That is, we must specify that when occurs in a subset of the environments in which then can occur, just as where subsets there:

(98) Then and now are found only as proforms for the objects of prepositions which occur in temporal paths; in particular, then and now can occur only in the Direction subconstituent of legs, or in the final PP of a leg.

By contrast, when has the more restricted distribution specified in (99):

(99) When can occur only as the object of end-prepositions — that is, of those prepositions which occur in the leg-final PP’s of initial or final legs.

Let us construct temporal examples as parallel to the spatial ones of (31) as may be possible. I will choose as our initial-leg end-prepositions since and the synonymous two-part prepositional idiom from . . . on, and as our final-leg end-prepositions, until and till. It is difficult to find medial-leg temporal prepositions which can be followed by then; then is definitely not as active a proform in the time domain as is there in the spatial domain, another consequence to be expected, if we see, as I believe we must, the use of the basic spatial path architecture in the time dimension as metaphorical. For metaphors are always only partial borrowings of a conceptual structure which is grounded in a primary domain.

This point is made brilliantly by John Lawler (cf. Lawler (1985), (1989)), who studies how the metaphor theme time is money allows the use of many financial words to talk about time concepts (I spent six hours in the darkroom, That detour cost us three days, They have invested many months on this project), but not others: *I outspent my brother in the Jacuzzi [*“I spent more time than he did in the Jacuzzi”], *I saved six hours by using my Macintosh and then withdrew three when I switched to a PS, etc. Lawler’s goal is to be able to predict in exactly what ways the (metaphorically) derived uses of a family of concepts will fail to extend.

It is clear that I am far from being able to even attempt any such predictions here; I will only note in passing that despite the fact that the prepositions past, through, and during would seem to be notionally medial-leg prepositions, only the first of them allows then:

(100) a. Mr. Hotley worked from 9 PM well past 2AM, and I worked past then too.
    b. * Mrs. Shankles worked through the months of March, April, and May, and I worked through then too.
    c. * We’ll all stay in our seats during the half-time show if you’ll stay in yours during then too.

We see in (101) that past does not allow whenning, as contrasted to the temporal end-prepositions of (102), which do:

(101) * Past when are you planning to work?
a. Mr. Robinson has been waiting since noon, and his brother-in-law has been waiting since then too.
b. Since when has he been pacing the floor with barely controlled fury?
c. Sandra wants to be in Los Alamos from the 14th on, and I want to be there from then on too.
d. From when on would you like to be there?
e. I will stay at the helm until the waves close above my head, and I expect you to stay at your posts until then too.
f. Until when do you plan to be tuning that violin?
g. I bet Leibniz could have squared the circle by 1700, and I bet Sir Isaac could have by then too.
h. By when do you want us to have tendered our letters of resignation?

To sum up this discussion, the fact that the where-subsetting of there-environments is matched by the when-subsetting of then ones – with both subsettings being conditioned by the same contrast between end-prepositions and medial ones – argues strongly for the existence of the abstract path construct, with its leg-subconstituents, whose basic phrase structure is laid out in the two rules in (17), as well as for the utility of the distinction between end-prepositions and medial ones.

•

It is time to draw the curtain closed, for the first act of my play. I have been trying, in these first three sections of this paper, to sketch the beginnings of an answer to some questions which reveal themselves as surprisingly thorny ones – questions such as

where are here and there (and now and then) possible?
when can one ask where and when questions?
what sequences of two or more prepositions are possible?
what kinds of phrases can be modified by right?

The answers that I have proposed draw on many previous pioneering studies, some of which I will describe in the following section. Central to the answer is the postulation of a large constituent – path – and its subparts – legs – and the recognition that there is a systematic difference between initial and final legs of paths, on the one hand, and medial ones, on the other. Equally focal is the recognition that there are two types of there – a NP one and a PP one, only the latter of which being modifiable by right (and some other words, like straight, up/down, in/out, etc.). And interacting with the above assumptions, in myriad ways, is the postulation of at least four rules of elision, or deletion, summarized in (103). In each case, the rule operates in such a way as to remove the parenthesized underlined elements.

(103) a. an extended version of Bruce Fraser’s rule, referred to as Path Shortening:

Let the cat in (to it), Push the broccoli through (it). [cf. the discussion of examples (62) – (77) above]

b. End-Leg Shortening – this rule deletes generic prepositions, like at, in, and on, when they immediately follow the two end-prepositions from and to:
Why not run from (*at) my house to (*at) your house? [cf. the discussion around (78) – (83) above]

c. Non-specific Adverbial Deprepositionalization (or Adverbial DePing) – a generalized form of (52) – At Zap: You can take some sugar from right (*at) there. [cf. the discussion around examples (32) – (57) above]

c. Disappointment, a rule which optionally deletes the head noun point when it occurs in end-legs: The sentient desert slime from Rigel VI boozed toward the terrified grad students from (points) behind the settee. [cf. the discussion around (84) – (97) above]

4. Towards Wider Horizons

I would like to trace part of the recent history of research on paths, as I understand it, in order to contextualize the picture of paths and their proforms which I have drawn above. As I cut my teeth on generative grammar, I am afraid that I know almost nothing of what has been achieved in other theoretical approaches.

Within generative grammar, there can be little question, I think, that the first great leap forward, though it was one that was totally unrecognized at the time, was that which came from Jeffrey Gruber’s 1965 thesis, which was later published as Gruber (1976). Gruber invented a way of combining semantic entities within a word; an example of his approach was his article in Language (cf. Gruber (1967)), in which he argued that see should be analyzed as a verb of motion, whose lexicalization involves the swallowing of an underlying prepositional concept TO. Thus he derived a sentence like She saw the house from the barn from an abstract structure which we could perhaps suggest as She saw from the barn to the house – his lexicalization rule had the effect of combining an underlying see + TO and producing a surface verb see which has no obvious connection to motion.

A large part of his work involved the study of motion predicates, both as they appear in sentences with spatial paths, and as they occur in metaphorical contexts. As I mentioned above, it was he who proposed the term theme as a label for that semantic entity which traverses a path, no matter in what dimension the movement occurs. Gruber’s work was later presented, in a different theoretical garb, to a wider audience, and deepened, by Ray Jackendoff (cf. especially Jackendoff (1976)).

Gruber’s basic conclusions are echoed by work done independently by Len Talmy; his term figure corresponds to Gruber’s theme. Talmy was working for his doctorate on the Hokan language Atsugewi; his thesis was completed in 1972. The bibliography he refers to in the thesis is extremely small, and mentions nothing by Gruber. I believe that the strong parallels that are evident between Gruber’s work and Talmy’s are another case like the Zeitgeist-caused coinvention of the calculus by Leibniz and Newton. It is clear that both Talmy and Gruber saw the centrality of motion in physical space as a grounding for the most basic metaphors in all languages. I understand that seeing space as basic is also a perception which lies at the core of what is known as the localist hypothesis, which is that all cases are derivable, both diachronically and synchronically, from spatial prepositions (Cf. Anderson (1971)).

Another scholar whose work has had an important effect on the treatment of motion within generative grammar is Charles Fillmore, whose 1968 model of Case Grammar let researchers see more clearly how constituents which had syntactically relevant relational roles (i.e., subject, object, indirect object, etc.) – the terms of
relational grammar (cf. Perlmutter (1983) for an outline of this alternative to classical generative grammar) could be related to their semantic roles, like agent, experiencer, theme, source, goal, trajectory, patient, beneficiary, etc. The current designation for such theoretical entities is thematic roles; the large body of work on them which has emerged in the last decade can, I think, be traced to the original pioneering insights of the trio of Gruber, Fillmore, and Talmy.

Relational grammar itself, and later spinoffs from it, such as arc-pair grammar, and metagraph grammar (cf. Postal (1989) and (1991)), have made many fundamental contributions to the ongoing and transtheoretical work of providing formal mechanisms which allow the deepening of the relationship between what used to be called deep and surface structure, in the good old days, and which is now unearthable under lots of different terminological hats. I think that it would be generally agreed that the single discovery made within relational grammar which has had the greatest impact across various brands of competing theories was the Perlmutter-Postal unaccusative hypothesis – basically, the insight that not all intransitive subjects are alike.

To the work starting in the late 60’s and continuing through the 70’s, a huge impetus was given by studies done largely on two campuses in California: in the north, at Berkeley, the work on metaphor, growing out of the original research by George Lakoff and Mark Johnson (cf. Lakoff and Johnson (1980) and Lakoff (1987)), and in the south, at La Jolla, the work on space grammar by Ron Langacker and his associates (cf. Langacker (1987)). This body of work is much too large for me to even attempt a review of it here. However, I perceive there to be a fundamental continuity to all the above work that I have mentioned: the attempt to find a basis in the structure of three-dimensional space and of motions therein for the deepest kinds of explanations of syntactic, and especially lexico-semantic, phenomena.

As for the relationship of all of the above-cited research to my own analyses which I am reporting on in this paper, I believe that most of what I have proposed above is original with me. I do not know of any other work on the distribution of here / there (and now / then) which would contrast it with the distribution of where (and when), nor of any other analyses which distinguish systematically between end-prepositions and other spatial ones. I believe that the idea of legs is also new, as are the four deletion rules which are summarized in (103). I must emphasize, however, that this may easily be due to my ignorance of the by now quite sizable body of references in this growing area. If I had to describe the ways in which I see my research to date as differing from what I know of what has been done thus far, I would say that I have wanted to hug the spatial ground a bit, to take a closer look at the detailed structure of paths and their subconstituents, especially the behavior of such revealing modifiers as right, and above all, at the mysterious ways of there, so that I may eventually be able to contribute somewhat to the drawing of the important conclusions for semantics (and for broader cognitive activities) which has provided the central thrust of research into the grammar of space for these past two and a half decades of study.

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And finally, I would like to dedicate this paper to the memory of Dwight Bolinger.

Footnotes

6. An extensive and brilliant discussion of over is found in Brugman (1981); it is summarized in Lakoff (1987).

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