Multiple Prepositions

Our PS rule for prepositional phrases states

A. PP --> P NP

The following examples are evidence that the rule needs to be changed to allow two, or even more prepositions in a prepositional phrase.

1. I went up over the hill.
2. I looked up along the trail.
3. It floated down the river from Columbia.
4. It floated down from Columbia.
5. It floated down from up the river.
6. It floated down from up in the mountains.
7. He came across from over on Main Street.
8. She came in from out by the barn.
9. They went out through the window.
10. This came in with the morning mail.
11. The plane flew up above the clouds.
12. Mel came down for the reunion.
13. Take this over to Grandmother, Red Riding Hood.

The list of possible combinations goes on and on. It almost looks as though there could be an infinite number of prepositions in a row, but, in fact, the longest grammatical string I found was four as in (6) and (8) above. It seems odd that the number would be limited to four, of all numbers. Perhaps there are some obscure longer strings that I was just unable to think of. Nonetheless, I'm afraid the new PS rule will have to set the number at four, because in every other case where we've specified that there could be an infinite number of a certain lexical item in a phrase, seemingly endless strings, certainly longer than four, have indeed been possible. The PS rule I made before to account for multiple prepositions was

B. PP --> P4 NP

This allowed the number of prepositions to easily be limited to four. But for reasons I will explain later, I have decided that a better rule is

C. PP --> P NP
--> P PP

Despite the advantages of this way of stating the rule, it has one disadvantage, which is that it doesn't allow us to limit the number of Ps in a string. Perhaps this could be done instead by a constraint like

D. P --> -[___ P P P P NP]

This way, since the new rule adds a new P before one that is already there, no string longer than four will ever be made.

The ordering of the prepositions is also very important in ensuring the grammaticality of a sentence. Sentences in which the order of prepositions is wrong are nothing but well-tossed "word salad":

14. *He went over down there.
15. *It floated from down Columbia.
16. *They went through out the window.
17. *This came with in the morning mail.
18. *She came by from in out the barn.

These ungrammatical sentences are even worse than many we've seen. In fact, we would not only cringe, but probably die if we heard someone say them. I think this is because most of them are semantically undecipherable as well as ungrammatical.

I tried before to come up with a neat and definite rule for the ordering of prepositions, like the one we had for auxes, but was unable to do so. Now I realize that this is because whether or not one preposition can follow or precede another depends not just on the particular prepositions, but on their context as well.

The prepositions I have used in my examples seem to fall into categories, and I've listed them here for ease of discussion.

Directional Ps: These indicate the direction of a movement and include 'down', 'up', 'across', 'out', 'in', 'over', and 'through'. It seems like 'to' should also be included in this group, but it doesn't behave the same way these do, so I'm not going to include it.

Origination Ps: 'from', 'of'

Locational Ps: These mostly state a location and not a movement toward something and include 'on', 'in', 'at', and 'by', but 'to' is also in this group.

Accompaniment: 'with'

The ordering of the prepositions depends on the semantic properties of both the preposition and what follows it, be

it another PP or an NP. Because of the semantic properties of each group, they can only be followed by things with corresponding semantic properties. Directional prepositions, for instance, can be followed by anything that represents either a place which can be traversed or an origin or destination. They can also be used somewhat like adverbs in cases where they indicate direction independently of what follows them. Thus it is possible to get sentences like "He drove down with a present for Ed". As long as a PP represents one of these things, then a directional preposition can be added at the beginning of it.

Each category of prepositions has semantic properties which similarly determine the semantic properties of what they precede, and it is thus that the order is determined. To try and make a rule for this ordering on syntactic grounds would be a gargantuan task, because so many different meanings can be achieved by one preposition depending on what follows it. Perhaps there really are no syntactic rules about preposition order, but only semantic ones, in which case (14) - (18) above would not be ungrammatical, only semantically hideous. At any rate, I can't think of a rule to order them, so they will have to remain a syntactic enigma until someone else can.