Wh-Movement

For notational convenience, I have used traces (t_i, t_j etc.) to indicate copies throughout this handout.

1 Wh-Movement

Question formation involves fronting of the questioned element (e.g. in the Germanic, Romance and Slavic languages). Typically this fronting is obligatory.

(1) a. Who_t does Martin like t_i?
   b. *Martin likes who?

The * on (1b) refers to the fact that (1b) is not a possible information seeking question. It can be used as an echo question though.

The process of question formation in English involves two distinct movements: I-to-C movement and fronting of an interrogative phrase. The two movements are independent of each other. I-to-C movement can take place without interrogative phrase fronting and interrogative phrase fronting can take place without I-to-C movement.

(2) a. Y/N Questions: I-to-C but no fronting:
   Has Martin left?
   Did Martin leave?
   b. Embedded Questions: fronting but no I-to-C:
   I wonder [who John will annoy today].
   ???/*I wonder [who will John annoy today].
   I wonder [who John annoyed today].
   ???/*I wonder [who did John annoy today].

Since most interrogative pronouns in English (the exception is how) start with wh, the process by which interrogative phrases are fronted is referred to as wh-movement.

1.1 Pied-piping

Wh-movement is triggered by the presence of an interrogative pronoun. We can assume that interrogative pronouns have a [+wh] feature that forces them to move.

(3) Who_t does Derek like t_i?

Wh-movement can also be triggered by wh-determiners.

(4) [Which doctor]_t does Derek like t_i?

Presumably the wh-determiner’s [+wh] feature percolates and makes the entire phrase which doctor count as a wh-phrase.
Since possessors in English seem to occupy the same syntactic position as *wh*-determiners, it is not surprising that when interrogative pronouns function as possessors, their [+wh] feature percolates and makes the entire phrase into a *wh*-phrase.

(5)  a. [Whose doctor]_{i} does Derek like t_{i}?
   [[Which person]'s doctor]_{i} does Derek like t_{i}?
b. [Whose doctor]'s brother]_{i} does Derek like t_{i}?
   [[Which person]'s doctor]'s brother]_{i} does Derek like t_{i}?

From a certain perspective, in (5), it is only *whose* or *which person* that needs to move. However in order to move *whose* or *which person*, we need to take along a bigger constituent that contains it. This process is called **pied-piping**.

In (5), if we try to move something smaller than the phrase that actually moves, we get ungrammaticality.

(6)  a. *[Whose] does Derek like [t_{i} doctor]?
   *[Which person]'s does Derek like [t_{i} doctor]?
   *[Which] does Derek like [[t_{i} person]'s doctor]?
b. *[Whose doctor]_{i} does Derek like [t_{i} brother]?
   *[Which person]'s does Derek like [[t_{i} doctor]'s brother]?
   *[Which] does Derek like [[[t_{i} person]'s doctor]'s brother]?

There are cases when pied-piping is optional. This is often the case with *wh*-phrases that are complements of prepositions. *wh*-complements of prepositions are also able to percolate their [+wh] feature to the entire PP.

(7)  a. [To whom]_{i} will Derek give a present t_{i}?
b. [On which table]_{i} did Derek put the book t_{i}?

### 1.2 Preposition Stranding

Pied-piping of the preposition is not obligatory in (7). It is also possible to leave the prepositions behind and just move the *wh*-phrase.

(8)  a. [Whom]_{i} will Derek give a present to t_{i}?
b. [Which table]_{i} did Derek put the book on t_{i}?

This process is known as **preposition stranding**.

Preposition stranding is not possible in Latin and in any Romance language.

(9) French

a. Stranding
   *Qui as-tu parlé de?
   who have-you talked about

b. Pied-piping
De qui as-tu parlé?
about who have-you talked
‘Who have you talked about?’

(10) Italian
   a. Stranding
      *Cui hai parlato di?
      who have-you talked about
   b. Pied-piping
      Di cui hai parlato?
      about who have-you talked
      ‘Who have you talked about?’

Preposition (or rather postposition) stranding also does not seem to be an option in any postpositional language such as Japanese, Korean, Hindi, Kashmiri etc.

Prescriptive grammarians suggest that it is to be avoided in English too, but there seems to be little other reason to avoid it. In fact, in certain environments pied-piping of prepositions that could have been stranded feels artificial and stilted.

Sometimes the pull of prescriptive grammar (pied-pipe, don’t strand!) and the syntax of English (strand!) is met simultaneously in curious sentences like the following.

(11) To whom did you give the book to?

2 Island Phenomena

Wh-Movement is unbounded i.e. a wh-phrase can move unboundedly far from the clause where it is merged.

(12) a. Who does Magnus like?
     b. Who did Loida think that Magnus liked?
     c. Who did Agustin believe that Loida thought that Magnus liked?
     d. . . .

However, it is not always possible to move a wh-phrase from one location to another. Configurations from which extraction is not possible are called islands.

2.1 Adjunct Islands

An important class of island consists of adjunct clauses. Adjunct clauses are very robust islands and do not allow any kind of expression to be extracted out of them.

Extraction out of Adjunct Clauses:

(13) because clauses
   a. John is unhappy because Sally likes Molly.
b. *Who is John unhappy because Sally likes t? 

(14) when clauses
a. John is unhappy when Sally hits Molly.
b. *Who is John unhappy when Sally hits t? 

(15) if clauses
a. John will be unhappy if Sally hits Molly.
b. *Who will John be unhappy if Sally hits t? 

(16) Relative clauses
a. Olafur likes the artist who composed *Hyperballad.*
b. *What does Olafur like the artist who composed t? 

2.2 Wh-islands

Another class of island is exemplified by the wh-islands shown below. These islands are weak in that extraction of arguments seems to only cause degradation and not ungrammaticality. Extraction of adjuncts out of wh-islands, however, leads to ungrammaticality.

(17) a. I wonder whether to invite Preston. 
b. ?Who do you wonder whether to invite t? 
c. I wonder whether to fix my car today? 
d. *How do you wonder whether to fix my car today t? 

(18) a. Mary wonders whether Will invited Preston. 
b. ?? Who does Mary wonder whether Bill invited t? 
c. Mary wonders whether she should fix her car today. 
d. *How does Mary wonder whether she should fix her car today t? 

The existence of wh-islands can be related to the fact that deriving these involves skipping an already filled [Spec,CP] position. This is similar to what we found for A-movement. Note though that the argument-adjunct asymmetry that we find with wh-islands does not follow directly from the ‘do not skip intervening [Spec,CP]’ requirement on wh-movement.

2.3 Subject-Object Asymmetries

Subject-Object Asymmetries: All arguments are not created equal. It seems to be easier to extract objects rather than subjects. Further it seems to be impossible to extract from subject but it is possible to extract out of objects.
2.3.1 Comp-trace Effects

Comp-trace effects: It is not possible to extract from the subject position in the presence of an overt Complementizer.

(19) *that-trace
   a. Who, do you think t₁ likes Mary?
   b. *Who, do you think that t₁ likes Mary?
   c. Who, do you think that Mary likes t₁?
   d. Who, do you think Mary likes t₁?

(20) *for-trace
   a. Ásta would prefer for Einar to marry Hafdis.
   b. *Who, would Ásta prefer for t₁ to marry Hafdis?
   c. *Who, would Ásta prefer t₁ to marry Hafdis?
   d. Who, would Ásta prefer for Einar to marry t₁?

2.3.2 Sentential Subjects

Extraction from out of a clause in subject position: we know that the arguments of adjectives can be left behind in their in-situ object position or moved to the subject position. It turns out that extraction out of such clauses is possible only if they are left in the object position.

(21) a. It is important to invite Will to our party.
   b. (?) Who, is it important to invite t₁ to our party?
   c. To invite Will to our party is important.
   d. *Who, is to invite t₁ to our party important?

(22) a. It is probable that Bill likes Einar.
   b. Who, is it probable that Bill likes t₁?
   c. That Bill likes Einar is probable.
   d. *Who, is that Bill likes t₁ probable?

* A′ movement must follow A-movement. Otherwise, we lose the distinction between the grammatical and the ungrammatical examples in the above paradigm.

2.3.3 Extraction out of NP

Extraction out of a clause embedded in an NP in subject position: Extraction from a clause embedded in an NP leads to degradation. We find the familiar argument-adjunct asymmetry at work - extraction of arguments leads to a minor degradation while extraction of adjuncts leads to ungrammaticality.

(23) Complex NP Islands (in object position)
   a. John heard [a rumor that you had read the Sandman comics].
b. ¿[Which book] did John hear [a rumor that you had read t₁]?
c. John announced [a plan to fix the red car].
d. [Which car] did John announce [a plan to fix t₁]?
e. *How, did John announce [a plan to fix the red car t₁]?

However, in all of the above examples, the NP from which we were extracting was in object position. If the relevant NP is placed in subject position the previously marginal but grammatical example becomes wholly ungrammatical.

(24) Complex NP Islands (in subject position)
   a. [A rumor that you read the Sandman comics] has been circulating.
   b. *[Which book] has [a rumor that you read t₁] been circulating?

Extraction out of PPs embedded inside NPs displays the same pattern. Extraction from subject NPs leads to ungrammaticality while extraction from object NPs is grammatical (though perhaps slightly marginal).

(25) a. What, should I bring [a bottle of t₁]?
   b. *Whatₜ should [a bottle of t₁] be brought?