Investigating N-Movement in English: Presence and Proposals

Undergraduate Honors Thesis in Linguistics, Northwestern University

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1 Introduction

For many years, whether the head of a Noun Phrase (NP), N^0, undergoes movement or not has been debated in the study of the internal structure of the nominal constituent in English. In Romance languages, such as Italian, it is clear that N^0 moves, as it can be located in different positions within DP; specifically, N^0 may appear either to the right or to the left of an attributive adjective (Cinque 1994):

(1) a. La loro brutale aggressione all' Albania
their brutal aggression against Albania
'Their brutal aggression against Albania'

b. La loro aggressione brutale all' Albania
their aggression brutal against Albania
'Their brutal aggression against Albania'

In most English cases, however, N^0 cannot precede an attributive adjective, as below:

(2) a. The brutal aggression against Albania.

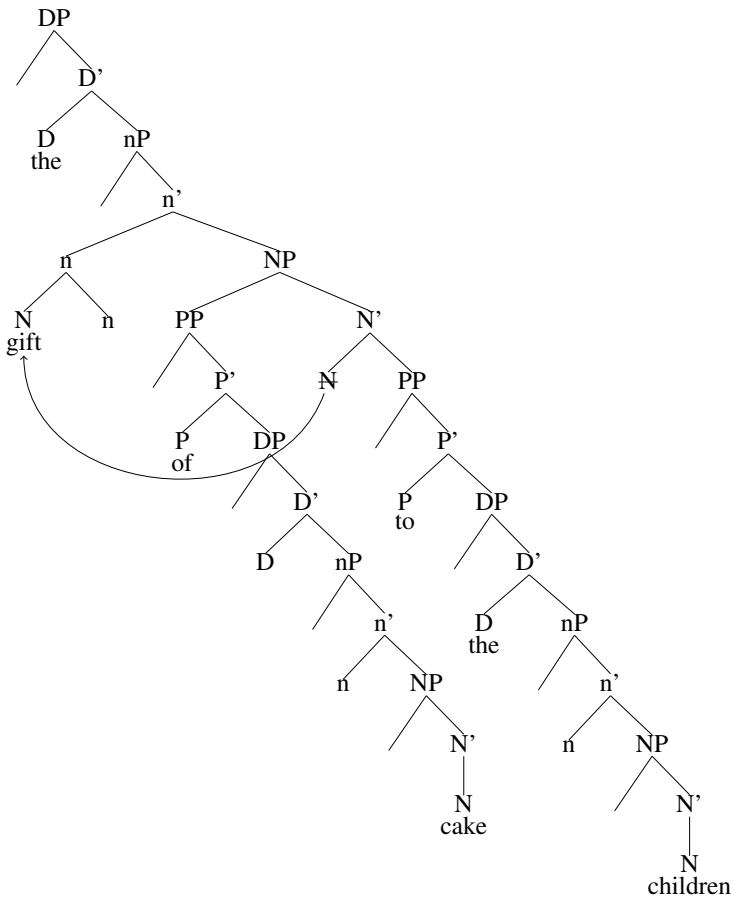
b. * The aggression brutal against Albania.

Thus, in English, it is not immediately obvious whether N^0 undergoes movement.

Despite observations like (2), it has been suggested in recent literature that N^0 in English *does* undergo movement – and that N can land in the n^0 position of an extended Nominal projection, nP ("little nP") (Adger 2003). Adger suggested that N-to-n movement occurs as in (3):

(3) a. the gift$_1$ of cake t_1 to the child

b.



Adger's argument is based on the parallelism between the syntax of Verb Phrases (VP) and NP. He first points out that both VP and NP can specify the same thematic relations as in (4):

(4) a. John gave a cake to the children.

b. John's gift of a cake to the children

Furthermore, he notes that the V^0 in (4), *give*, is analyzed as undergoing movement to v^0 in an extended VP-structure, and this head-movement is a crucial part of the syntax of the thematic relation within VP. Given that the NP can specify exactly the same thematic relation as VP, Adger argues that N^0 should move in the same way as V^0. However, there is not much convincing evidence for (English) N-movement or n^0 as a landing site in the literature, nor does Adger provide any clear evidence for such movement.

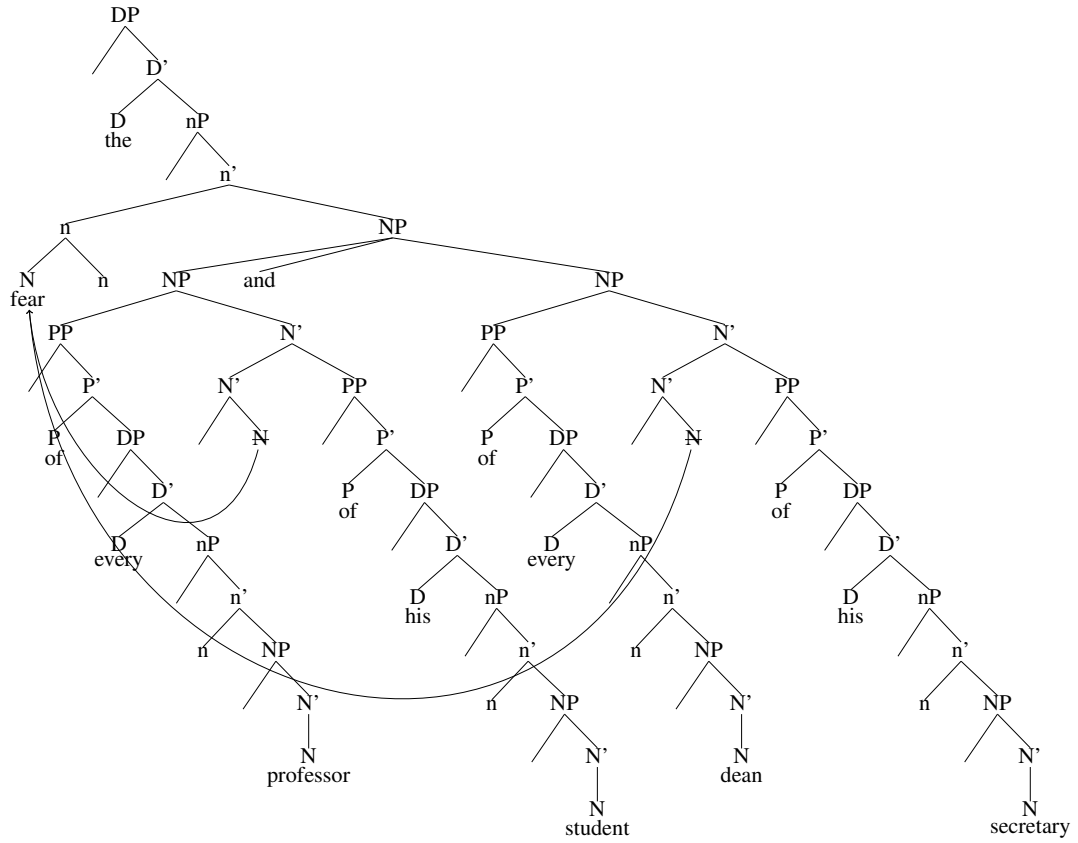
In this thesis, I aim to provide a more direct argument for the movement of N^0 to n^0. To this end, this thesis examines a curious sequence of Prepositional Phrases (PPs) that occurs only in the

coordination context, which I call Pseudo PP-Coordination (PPPC), as illustrated in (5):

(5) The fear of every professor of his student and [$_{PP}$ of every dean] [$_{PP}$ of his secretary].

The argument that I make is roughly as follows. If movement from N^0 to n^0 is truly occurring, then the the distribution of N^0 should be sensitive to movement constraints, such as the Head Movement Constraint (Baker 1988, Travis 1984) and the Coordinate Structure Constraint (Ross 1967). I argue that the PPPC is the product of such movement derivation, which is the reason why it may occur only in the coordination context. I aim to show that examples like (5) have the structure illustrated in (6a):

(6) a. The fear$_1$ of every professor$_2$ t$_1$ of his student and of every dean$_3$ t$_1$ of his secretary.

b. 

Through a formal acceptability rating experiment on the PPPC (6), I show that N-movement does occur in this kind of structure in English. Then, through close analysis of word order patterns in that structure, I show that nP hosts an appropriate landing site for N, n^0, ultimately supporting

Adger's initial analysis. While some claim that N-movement does not occur in English (Alexiadou, Haegeman, and Stavrou 2007), this paper provides evidence that such movement truly occurs in English.

2 Background

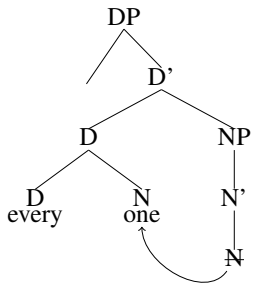
In this section, I discuss prior N-movement proposals to clarify the current state of NP and DP structure and illustrate how those differ from the N-to-n proposal discussed above. First, I explain how Abney (1987)'s N-to-D movement proposal seems to provide an alluring explanation for "light noun" construction, though it lacks experimental evidence. Then, I reconstruct (some of) the history of N-to-# movement (Bernstein 2001, Kishimoto 2000, Ritter 1991), which similarly – but perhaps more convincingly – characterizes light noun movement as a consequence of Number Phrase feature attraction and resolves an apparent disparity between two similar constructions in Hebrew. Finally, I describe the issues with #P as an explanation for N-movement (as identified by Orth and Yoshida (2023)) and note the modern return to N-to-D movement. Afterwards, I summarize the relatively unexplored (in this area) N-to-n movement proposal, which may serve as a viable alternative to N-to-D but warrants further investigation.

2.1 N-to-D Movement

As part of his Determiner Phrase (DP) Hypothesis, Abney (1987) argues that some evidence for Determiner being a functional element comes from "head-to-head" movement (specifically N-to-D movement):

(7) English (from Abney 1987:181)

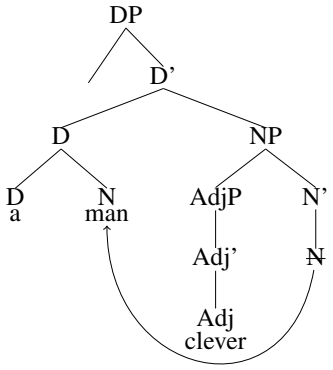
everyone $<$ every+one



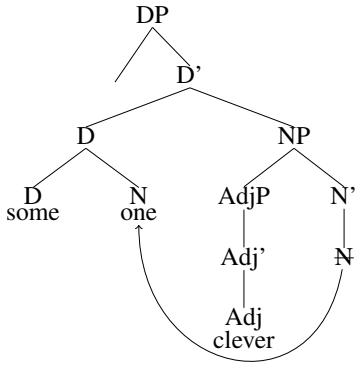
Abney justifies this kind of movement by noting that under the alternate DetP-as-spec analysis,

the moved head would not c-command its trace – violating the Empty Category Principle. Additionally, by positing this movement, Abney can explain how "light nouns" are able to violate normal Adjective-Noun ordering, where Adj must precede N:

(8) a. *a man clever



b. someone clever



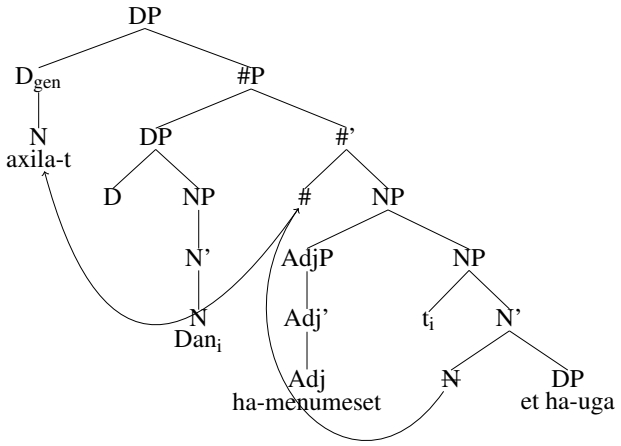
However, he does not further explore and expand this evidence, nor is experimental data provided. Longobardi (1994), though, further developed the theory of articleless nouns (e.g. proper names, bare NPs) through his investigation of English, Italian, German, and other languages. He argued that the apparent differences in N-to-D movement across languages like English and Italian (and the apparent differences between their NPs/DPs in general) can be attributed to how determiners are spelled out in those languages. While N-to-D isn't overt in English like it is in Italian, his is because of the aforementioned spell out rules (Alexiadou et al. 2007, Longobardi 1994).

2.2 Number Phrase

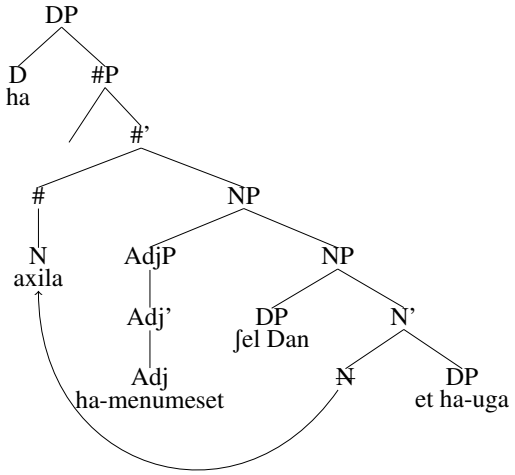
Ritter (1991) finds further evidence for Abney (1987)'s DPs and motivates head movement by analyzing Hebrew Construct States and Free Genitives. Some of her initial evidence for DPs is that, simply, CSs never have *ha* (the definite determiner in Hebrew) as their first element – which can be explained easily if construct states are DPs headed by D_{gen} (a null D that assigns genitive case to the NP on its right). That is, the D position is already occupied; in such a case, the N^0 of a lower NP moves up to the D so that the CS can obtain its genitive marking (and remains indefinite because the definite determiner cannot co-occur with D_{gen}). FGs contrast with CSs, however, as the former appear to utilize a different form of genitive marking – the explicit marker *ʃel* – and, as such, can include the definite determiner to create either a definite or indefinite genitive. FGs, though, still present Noun Subject Object order, which was explained in CSs by N-to-D movement; since the NSO order remains, Ritter postulates that N-movement must still be occurring but that there is an additional landing site for N between NP and DP (so as to maintain the Head Movement Constraint): the Number Phrase (#P). To explain how adjective ordering can differ in CS and FG, as well as to combine the DP and DP+#P structures of the two (respectively) into a unified account, Ritter suggests that both CSs and FGs contain #P; in such a case, the different adjective orderings are explained by a difference in distance moved in the CS or FG – (9a) and (9b), respectively:

(9) Hebrew (from Ritter 1991:45-46)

a. axilat Dan ha-menumeset et ha-uga
eating Dan the-polite ACC the-cake
'Dan's polite eating of the cake'



b. ha-axila ha-menumeset ʃel Dan et ha-uga
the-eating the-polite of Dan ACC the-cake
'Dan's polite eating of the cake'



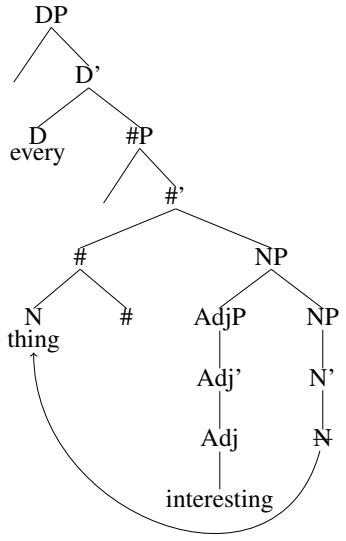
The two's equivalent deep structures explain why there is no difference in meaning between them when they contain the same words: the difference in surface structure is a result of different genitive marking strategies rather than a fundamental structural difference (which *would* result in different meanings). This account is finalized by Ritter's investigation of Clitic Doubled Construct State Noun Phrases, which both contain genitive case-markers and have NSO order (as in CS and FG). Thanks to the #P analysis, Ritter can unify all three genitive constructions in Hebrew as having essentially the same deep structure (only differing on the surface due to their different genitive

marking strategies).

Kishimoto (2000) sets out to find evidence for N-raising in English, as nominal and clausal structures are analogical (Abney 1987) and there is attested evidence for V-to-T raising in English – but few attempts to find N-raising in English, which should observably exist due to this parallelism, have been made. As this kind of raising occurs specifically for light verbs (e.g. *be*), Kishimoto chooses to focus on light nouns (identified as evidence by Abney for his DP Hypothesis). However, since lexical head movement into a position containing another lexical head is not observed in clausal structures, and Kishimoto is pursuing parallelism between clausal and nominal structures, he does not expect to observe it (or want to speculate it in his model) and adopts a #P analysis (which is beneficial, as the D of a light noun is always filled, and therefore this allows him to avoid undesirable N-to-D movement). The analysis is somewhat similar to Abney (1987)'s, where a light noun is not a simple lexical word:

(10) English (from Kishimoto 2000:560)

everything interesting



This explains the irregular adjective ordering allowed with light nouns (Abney 1987, Kishimoto 2000). Additionally, this adjective ordering provides further evidence for N-raising, as only light

nouns (and not the heavy lexical versions of the items which compose them, e.g. *thing*) can undergo this raising – just like how only light verbs can undergo V-raising.

There is additional evidence for light nouns not being a single lexical item, too: adverbs which cannot modify most nouns (e.g. *almost*) are able to modify light nouns. If light nouns were single lexical items, then such adverbs should not be able to modify them, either. Furthermore, other non-light nouns containing the determiners used in light nouns (e.g. *every*) cannot be modified by those adverbs:

(11) a. almost/virtually/nearly everyone

b. *almost/virtually/nearly people

c. *an almost everyman
"an almost ordinary man"

d. nearly every day

Kishimoto argues that these kinds of irregular adjective orderings in English are a consequence of N-raising: specifically, they result from checking a formal feature contained in #P, similarly to how V-to-T raising works[1]. Again, in the pursuit of paralleism, Kishimoto points out that V-raising can be explained by assuming that the dominating T^0 is marked [+finite], which explains the asymmetry of light verb raising; so too, he states, can N-raising be the result of a [+singular] feature appearing on the $\#^0$ – light nouns are always singular and lack plural forms (similar to the asymmetry of light verb V-raising), so postulating that some $\#_{[+singular]}$ attracts light nouns both fits his desired parallelism and appears to abide by the #P hypothesis.

While Kishimoto strengthens the overall #P hypothesis and the case for N-raising, he does not provide further experimental evidence. It's clear that number marking is doing something – but it's unclear exactly what.

[1]Light verbs, when overtly raised, result in distinct word ordering. For example: in "John did not arrive yesterday", *not* appears to the right of the light verb *did*, similarly to how an adjective can appear to the right of a light noun after it has undergone N-raising.

2.3 A Return to N-to-D

Orth and Yoshida (2023) investigate the Adjective-Prepositional Phrase (A-PP) string, which appears to be a non-constituent (as Adj typically does not modify PP) but is still coordinated:

(12) I interviewed [$_{DP}$ someone old from New York] and [$_{A}$ young] [$_{PP}$ from Chicago]

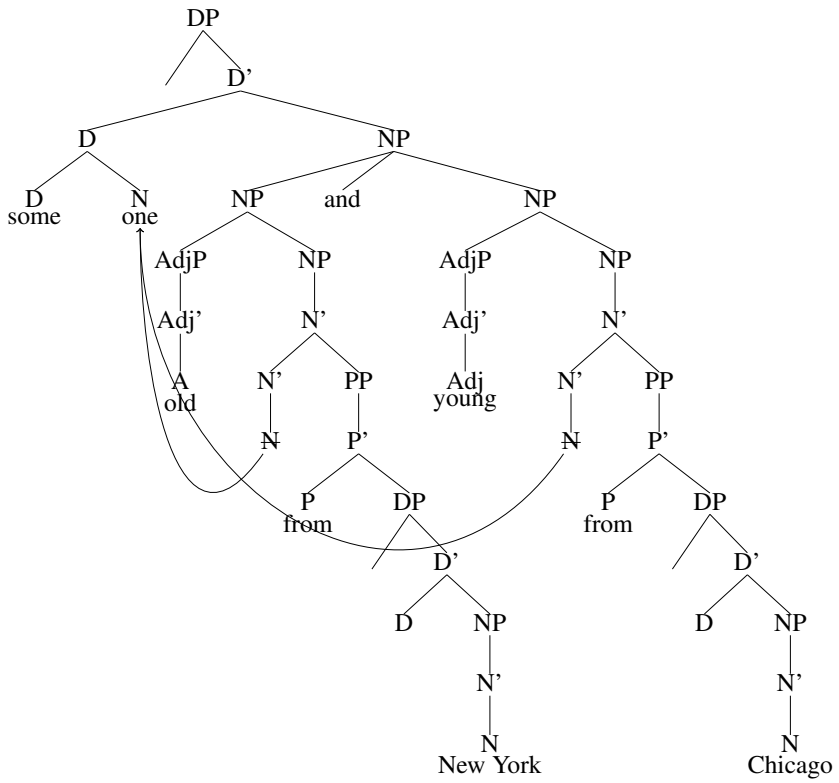
At first, it may appear that the string requires only a light noun to be licensed; however, the coordinating context seems crucial, as a light noun alone may not be enough to license A-PP coordination:

(13) a. I interviewed [$_{DP}$ someone old from New York] after *(someone) [$_{A}$ young] [$_{PP}$ from Chicago]

b. I interviewed [$_{DP}$ someone old from New York] [$_{PP}$ with *(someone) [$_{A}$ young] [$_{PP}$ from Chicago]]

Whether the PP is adjunct to a VP or TP (as in (13a)) or adjunct to an NP (as in (13b)), it seems as though the coordinating context is required. To investigate A-PP string and coordination contexts, the authors ran a rating experiment manipulating CONNECTIVE (coordination vs. non-coordinating) and NOUN (light vs. heavy), ultimately finding that the A-PP string requires a coordinating context (and not a light noun). Additionally, they note that if the Adjective appears in a prenominal position, the A-PP string is unlicensed; and, further, the second conjunct cannot contain a determiner without violating the licensing context. As such, the authors speculate that there is actually NP-coordination occurring here, as each of the licit examples requires that the N appears directly between the D and the Adj. It may be possible that the second NP is undergoing ellipsis – but the authors note that A-PP and Noun Phrase Ellipsis do not have completely overlapping distributions: as such, Orth and Yoshida posit that instead of NPE, A-PP coordination may be an example of Across-the-Board-N-movement Nominal Gapping in English:

(14)



The authors also verify that the entire constituent has the distribution of DP. They then turn to analyzing light noun coordination: and, interestingly, they conclude that N-to-D movement (Abney 1987, Alexiadou et al. 2007, Longobardi 1994) appears to make better predictions about what can appear between D and N (i.e. nothing) than N-to-# (Bernstein 2001, Kishimoto 2000, Ritter 1991) does. For example, the latter should allow ordinals to appear between D and #P, but this does not appear to be acceptable in a light noun context.

Interestingly, while Adj is trivially required for A-PP coordination and ATB-N-movement, the same kind of coordination and movement can occur when only a PP is present. Orth and Yoshida then explain how their proposal is restricted to coordination contexts, which is expected for ATB-movement: but is also explainable by noting that attempting to perform ATB-N-movement in a PP-adjunct context like (13b), for example, or in a PP-coordination structure would violate the Head Movement Constraint (by stranding the P and attempting non-local movement, respectively). Additionally, they mention that A-PP coordination is not possible with a prenominal Adj because the N has not moved from its root position, and therefore moving the second conjunct N would

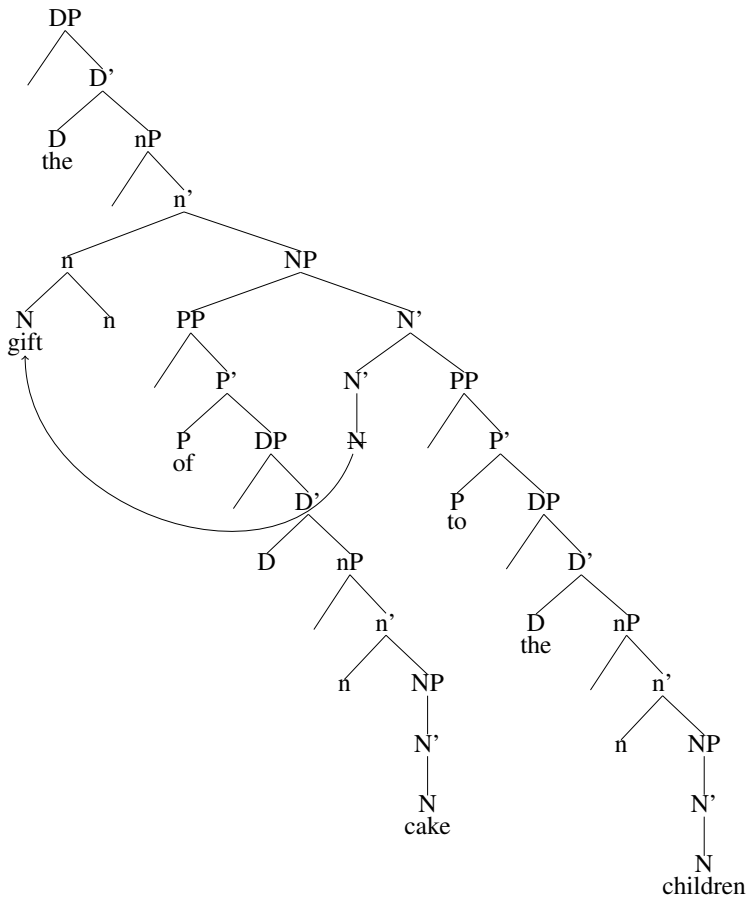
require sideward movement (which is generally not allowed; and, since it's observably unacceptable to native English speakers, is not an adequate explanation, regardless). They further motivate ATB-movement by examining three-conjunct constructions – which obey the anticipated Negative Polarity Item behavior (as explored for two-conjunct constructions earlier in their paper) – and showing that the A-PP string cannot precede the coordination position[2]. Finally, Orth and Yoshida reject previous arguments that NG is unobservable in English due to its seemingly complete overlapping distribution with NPE and the apparent lack of N-movement attestation in English (cf. Yoshida et al. 2012) by reminding the reader that the A-PP string was already observed to not completely overlap with NPE earlier in the paper: it relies on N-movement to be adequately explained in the first place.

2.4 Little nP

While the papers previously explored in this section posit either D or # as the possible landing sites for an N^0 undergoing N-movement (ATB or otherwise), there is a third possibility: the n of an nP. Adger (2003) introduced the nP as a nominal parallel to the verbal vP, specifically noting that its existence is motivated by the lack of Agents appearing as of-PPs in nominals. Adger argues that Theme should c-command the Goal of a DP just as it does the Goal of a vP – and, therefore, it makes sense to speculate that nP is present in DP. Additionally, he notes that there is further evidence for nP based on the similarities between NP and VP coordination. Ultimately, nP and vP both introduce an Agent, and nP is not simply an additional/optional category because word order can only be maintained (in both Agent and non-Agent constructions) when N^0 is raised to n^0:

[2]This is not necessarily predicted under an NPE analysis (cf. Yoshida, Wang, and Potter 2012), but is a natural consequence of ATB-N-movement Gapping.

(15)



However, Adger does not include further experimentation or explanation of this structure. Further ATB-movement tests may elucidate whether or not this is a viable structure (particularly if it is an appropriate landing site for N^0 during N-movement).

3 Experiment

To further investigate ATB-N-movement in English, this experiment uses items based on a comment by an editor of Orth and Yoshida (2023) that suggests another set of potential N-movement structures (seen previously in (6), but repeated in (16) for clarity):

(16) a. The fear$_1$ of every professor$_2$ t_1 of his student.

b. The fear$_1$ of every professor$_2$ t_1 of his student and of every dean$_3$ t_1 of his secretary.

My items replace all non-psychological NPs with proper names, which pilot participants[3] found more easily interpretable[4].

[3]Five non-linguists.

[4]The proper name modification may have been an unnecessary change, as my first pilot items (intentionally)

3.1 Participants

Participants were 77 English speakers recruited from the Northwestern University Linguistics Student Subject Pool.

3.2 Procedure

To investigate N-movement in the PPPC, I conducted an acceptability rating experiment, manipulating CONNECTIVE (*and* vs. *from*) and GAP (present vs. absent) as independent factors in a 2×2 factorial design (illustrated in (17)). Half of the items used *distinguish* as the main verb, while the other half used *differentiate*. Additionally, each item involved nouns derived from psychological predicates (Belletti and Rizzi 1988, Pesetsky 1995:and many others), such as *fear*, *image*, and *love*. Each item also contained four unique names (which each typically began with a different letter):

(17) a. I want to distinguish the praise of Nick of Sheila from of Ralph of Sandra. (Connective: *from*/Gap: present)

b. I want to distinguish the praise of Nick of Sheila and of Ralph of Sandra. (Connective: *and*/Gap:present)

c. I want to distinguish the praise of Nick of Sheila from the appreciation of Ralph of Sandra. (Connective: *from*/Gap: absent)

d. I want to distinguish the praise of Nick of Sheila and the appreciation of Ralph of Sandra. (Connective: *and*/Gap: absent)

Participants viewed sentences one by one (i.e. one per screen) and rated sentences on a scale from 1 to 7. Each participant saw a total of 104 sentences: 32 of which were test sentences from the above conditions, and 72 of which were fillers of a similar length and complexity to the target sentences. Items were split into eight lists following a Latin Square design. All lists were pseudorandomized so that sentences of the same condition were not adjacent.

contained non-viable prepositions, which may have led to a general confound in participants' understanding of sentences. Additionally, the initial pilot (before revision and "differentiate"/"distinguish" were selected as the verbs) did not include an acclimation task, while my revised pilot did. However, replacing the original NPs with proper names should not have significantly impacted the results.

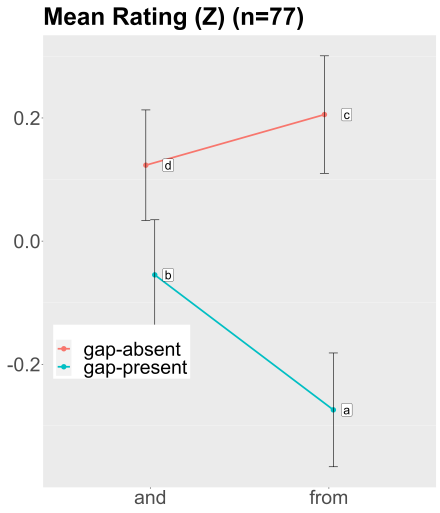


Figure 1: Interaction plot of results

cond	mean_rating	sd
from+present	3.51	2.02
and+present	3.95	1.94
from+absent	4.47	1.99
and+absent	4.31	1.97

Table 1: Summary statistics

3.3 Predictions

I expect high and roughly equal scores in the gap-absent cases (regardless of connective), as the lack of movement should not cause a violation of any movement-related constraints. That is, regardless of whether or not movement is occurring in the PPPC, *and*-absent and *from*-absent should both be acceptable, as the presence of the NP in the second conjunct should not require any kind of movement. If there is truly ATB-N-movement in the gap-present cases, I expect *and*-present to be rated higher than *from*-present, as the former should observe both the Head Movement Constraint and the Coordinate Structure Constraint while the latter would violate such constraints. As a result, the PPPC should only be acceptable in the coordination context. More specifically, *from*-gap should be unacceptable and lowly rated due to its violation(s). Alternatively, if no such movement is occurring, then *and*-present and *from*-present should be similarly acceptable, as the PPPC would contain no movement constraint violations – just the same as in the gap-absent cases.

3.4 Results

Acceptability rating scores were recorded and analyzed using a standard ordinal regression model. Rating was treated as an ordered variable predicted from GAP, CONNECTIVE, and a potential interaction between the two. The ordinal regression revealed a significant effect of GAP ($p < 0.001$,

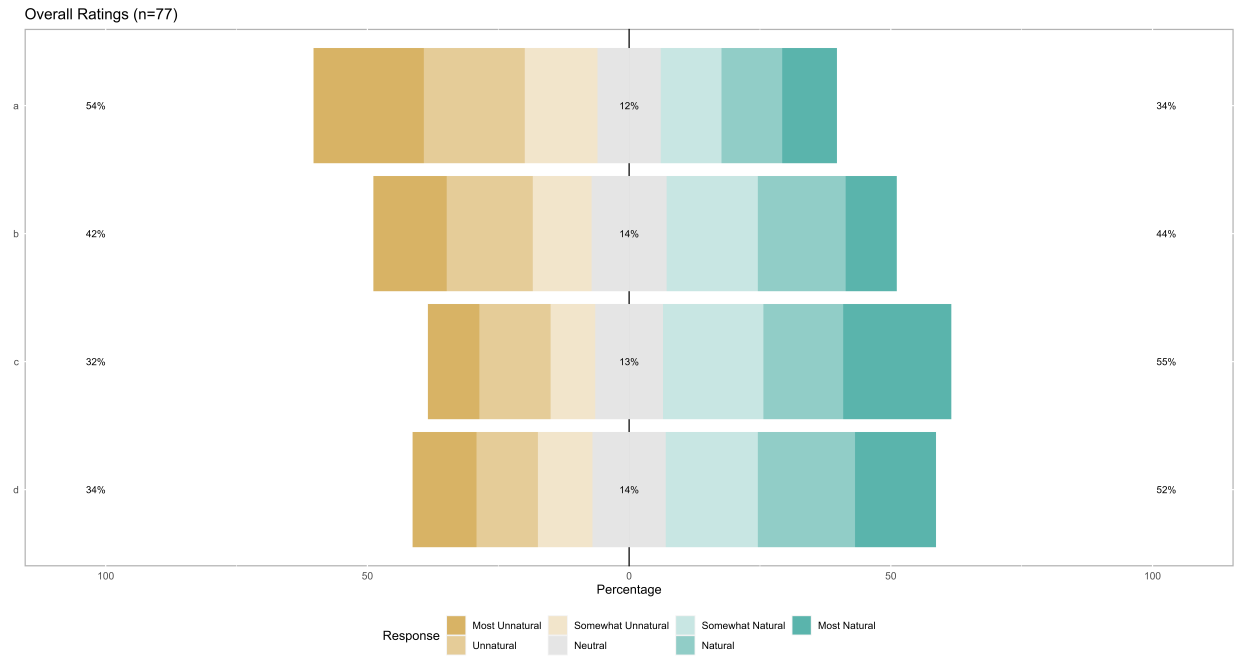


Figure 2: Graph of participant ratings

t = 8.2456, s.e. = 0.0714) and an approaching significant effect of CONNECTIVE ($p < 0.1$, t = 1.6983, s.e. = 0.0707). Sentences where the gap was present received lower ratings than those without a gap; and those which used *and* instead of *from* were rated more highly. Additionally, there was a significant interaction of GAP × CONNECTIVE ($p < 0.001$, t = -3.8954, s.e. = 0.1416).

3.5 Discussion

My predictions seem to be correct: non-gapped sentences were the most highly rated, with *and*-gap sentences rated lower – but better than their *from*-gap counterparts. The *and-from* gap distinction is consistent with known constraints on movement, like the Head Movement Constraint and the Coordinate Structure Constraint. Additionally, the significant effect of GAP appears to support my claim that ATB-N-movement explains the distribution of the Pseudo-PP string.

As an aside: it's worth noting that the unacceptability of the *from*-gap construction is not simply due to the unacceptability of "from of". Other preposition-*of* constructions are observed and acceptable in English, such as in "John was angry **because of** Mary" and "Get me **out of** here". It would be hasty to attribute the unacceptability of "from of" to some property of prepositions – in

light of the above results, difficulty from movement (constraints) appears to be a more appealing explanation.

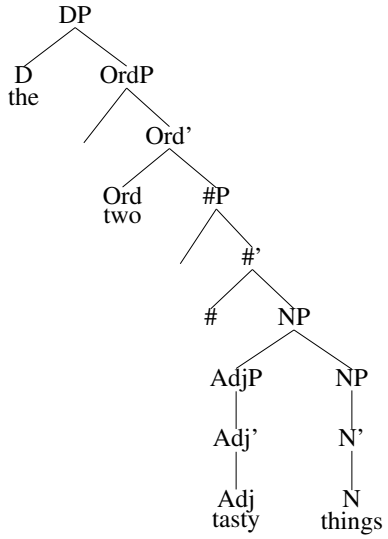
4 Where Does N Really Move To?

Having confirmed that N^0 undergoes movement and is sensitive to movement constraints, we must investigate the three aforementioned N-movement proposals: N-to-# (Bernstein 2001, Kishimoto 2000, Ritter 1991), N-to-D (Abney 1987, Orth and Yoshida 2023), and N-to-n (Adger 2003).

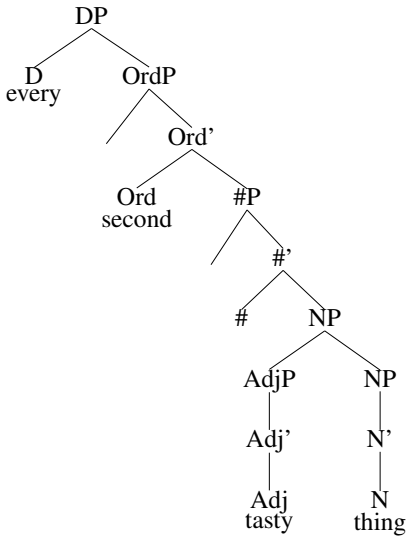
First, Orth and Yoshida appropriately point out that Kishimoto's N-to-# movement is an inadequate description of light noun movement. It predicts that an element which could come between a D and #P should just as easily be able to appear between a D and light noun, as moving the light noun to # would not require crossing a non-AdjP category (which would prevent the movement). However, this is not the case:

(18) Intervening Ordinal Phrase (from Orth and Yoshida 2023:8)

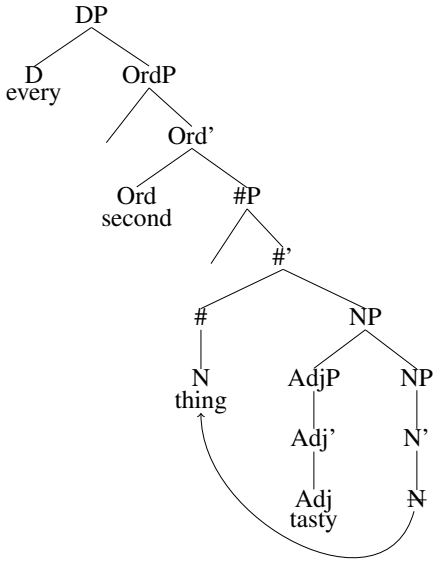
a. I ate the two tasty things



b. I ate every second tasty thing

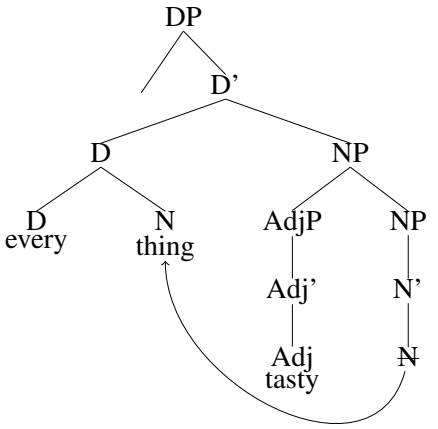


c. *I ate every second thing tasty



Orth and Yoshida's alternative, N-to-D movement, provides a better account of light noun movement. It predicts that no intervening element can come between the N and D since the N is adjoined to the D directly, as in (7), (8), (14), and (19):

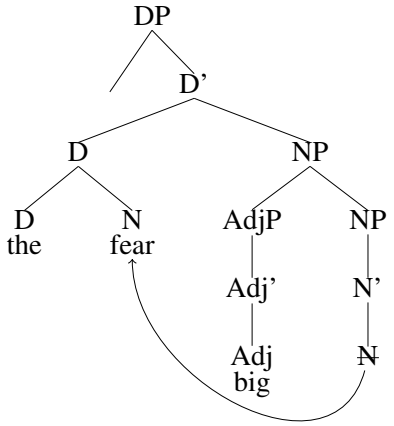
(19)



Since N-to-D movement seems promising, it's necessary to analyze how it performs on the kind of items in this paper (3.2). However, upon doing so, it seems like psychological nouns do not act the same as light nouns:

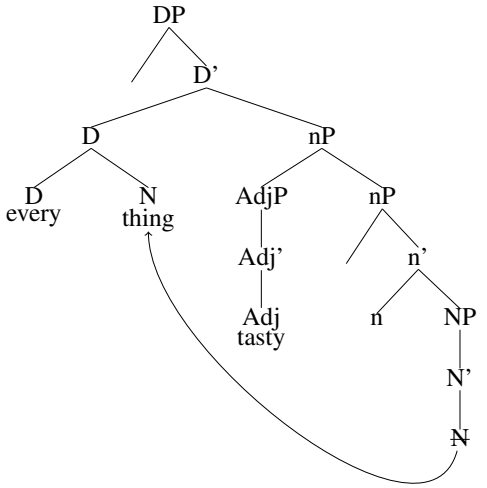
(20) a. The big fear

b. *The fear big

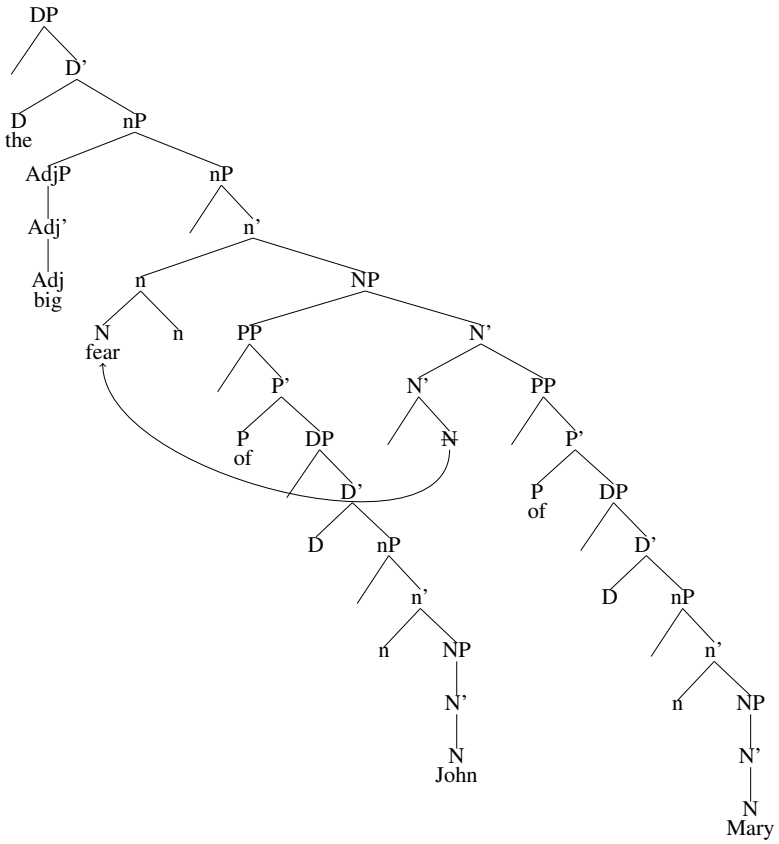


Perhaps unsurprisingly, it appears that psychological nouns can't move past a prenominal AdjP, which would allow them to appear postnominal in the surface structure. That is, there's some important difference between these kinds of nouns. However, my results showed that there is, in fact, movement of psychological nouns: if their landing site isn't D, there should be another functional category between AdjP and NP that hosts the moved N. It seems as though nP can provide such a landing site, n – which can still be reconciled with the N-to-D light noun movement account:

(21) a. Everything tasty



b. The big fear of John of Mary[5]



Orth and Yoshida also made a stronger case for ATB-N-to-D-movement in general, noting that

[5]Adger posits that AdjP adjoins to nP rather than NP. Since I am operating under his framework, I use this structure in the following examples.

it can result in a surface form like (22):

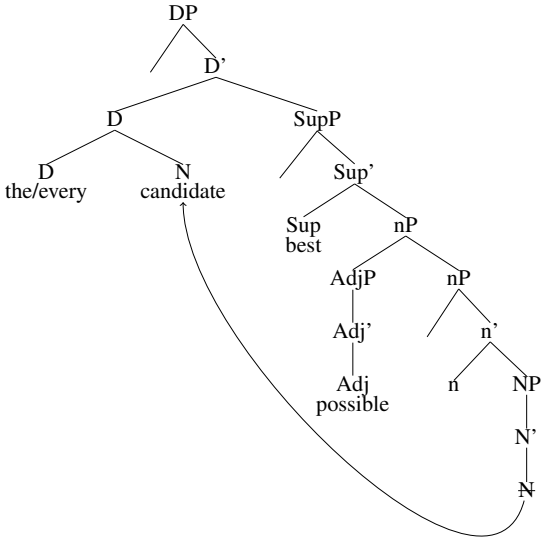
(22) Non-light (heavy) N-to-D movement (from Orth and Yoshida 2023:14, 16, 17)

a. I interviewed every candidate possible in this group, promising in that group, and prominent in the last group.

b. I interviewed every candidate possible in this group and promising in that group.

However, they do not subject this non-light construction to the same kind of testing as they did Kishimoto's examples – and, in doing so, did not seem to notice that N-to-D cannot appropriately account for this apparently similar construction due to the potential presence of intervening elements: ordinals[6] and superlatives[7] can appear between the D and the moved N. By re-introducing a functional category between DP and nP, such as #P, such sentences can be accounted for:

(23) a. *The best candidate possible[8]

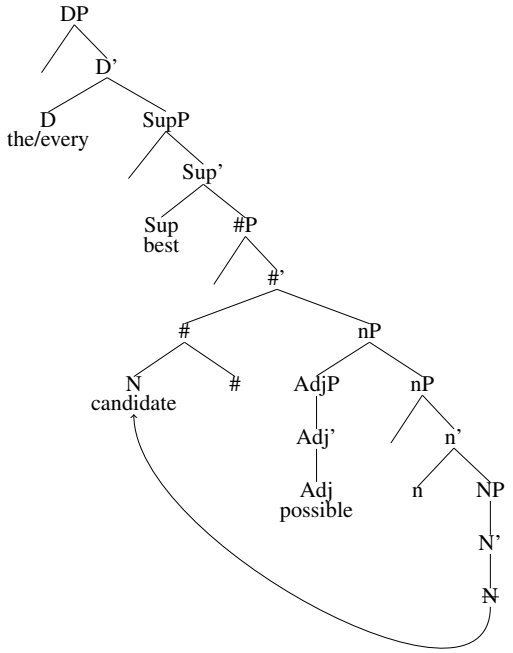


[6]In investigating the apparent ability of ordinals to exist in this intervening position, I noticed a non-ordinal-like licit interpretation of typically ordinal words. By saying "every second candidate possible", I derive the meaning "every other candidate possible" – that is, *second* is unit-denoting here rather than properly ordinal. While this is an interesting observation, it is not directly relevant to the work at hand, and may be confounding if used in the following examples. As such, I opt for superlatives in (23) instead.

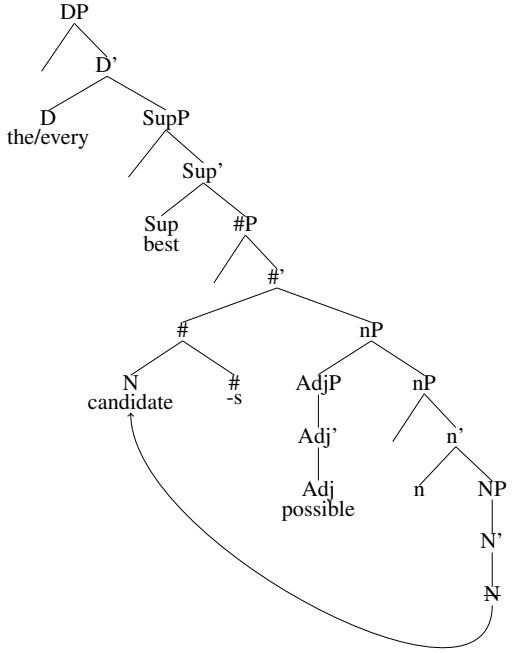
[7]Here, I am adopting a naive SupP category between the DP and nP. However, while this very well may not be the case, my account should be easily reconcilable with those set out by Matushansky (2008) and many others.

[8]Unacceptable, but possible according to N-to-D.

b. The best candidate possible



c. The best candidates possible



The ability of *candidate* to still take plural morphology, as in (23c), provides further evidence that #P contains an adequate landing site for the N.

Ultimately, it seems as though these three kinds of nouns may be moved and treated differently from one another: light nouns are formed from N-to-D movement, psychological nouns – or, more generally, verb derived nouns (e.g. *love*, *hate*, *introduction*) – do not appear to move in English, but actually undergo N-to-n movement[9], and "candidate-like" heavy nouns (e.g. *president elect*, *teacher*, *programmer*) – that is, those not derived from verbs – move to some intermediary category between DP and nP, such as #P. The differences between these three kinds of nouns may affect their licit movement landing sites: the question remains open for future investigation.

5 Conclusion

Whether N^0 movement is present in English has remained controversial throughout the span of linguistic history, and prior proposals for it – despite being alluring – often do not have experimental evidence supporting them. By introducing the Pseudo-PP Coordination construction and manipulating CONNECTIVE and GAP in a rating experiment, I show that ATB-N-movement appears to occur in English. Through further analysis, I illustrate that movement in the PPPC appears to follow an N-to-n approach – but that this approach does not adequately account for non-verb-derived light and heavy nouns, which appear in distributions distinct from those observed for psychological nouns. Insetad, I suggest that such nouns may instead agree with proposals previously set aside for N-movement[10]: N-to-D and N-to-# movement, respectively. While my evidence for these latter two is purely theoretical, future work should aim to test them experimentally. By utilizing the items in this thesis, creating other similar ones with non-derived nouns, and varying adjective placement within sentences (i.e. before and after target nouns), we should be able to test whether N-to-D and N-to-# provide adequate explanations of non-psychological noun movement. Doing so would provide valuable insight into NP and DP structure and potentially clarify the similarities (and differences) between NP and VP.

[9]To reiterate: this paper's experiment found evidence of movement in items using these psychological nouns. Therefore, we must explain their non-apparent, covert movement.

[10]In the PPPC construction and others like it.

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