

Contraction and Grammaticalization*

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1. Introduction

It is well known that the English language has seven peculiar colloquial forms, called contracted forms, shown in (1), where the infinitive marker *to* is merged both phonologically and morphologically with the preceding predicate to form a single word.

- | | |
|---------------------------------|---------------------------|
| (1) a. want to → wanna | b. be going to → be gonna |
| c. have to → hafta | d. used to → usta |
| e. (have) got to → (have) gotta | f. ought to → oughta |
| g. be supposed to → be suposta | |

The process by which *to* is merged with the preceding word, often called *to*-contraction, has been a theoretical topic of the generative-grammatical study of English since the first half of the 1970s. It has been said in the generative literature that the process is not a simple phonological or morphological phenomenon. Rather, it is seen to be a complex phenomenon into which syntactic structure also enters.

The generative-grammatical view of *to*-contraction aroused a hot controversy on its nature, and various attempts have been made from various standpoints to clarify the process through which the contracted forms are derived. They include attempts like those by Selkirk (1972, 1984), Chomsky (1976, 1977, 1980a, 1980b) and Chomsky and Lasnik (1977, 1978), Lightfoot (1976, 1977), Postal and Pullum (1978, 1982), Pullum and Postal (1979), Suiko (1978), Fiengo (1980), Bolinger (1981), Jaeggli (1980), Pullum (1997), Boeckx (2000), and so forth.

Each attempt differs in theoretical standpoint from the others, and the controversy still continues. At first glance, it seems to range over a variety of issues, both theoretical and empirical. Actually, however, it centers on the following three issues: (i) whether or not syntactic structure is the most dominant factor to determine the occurrence of the contracted forms, (ii) whether or not their surface forms are derived through a phonological process, and (iii) whether or not they can be identified as modal-like elements.

If these three issues are resolved, it is possible to provide an answer to the fundamental question of what *to*-contraction is. Notice, however, attempts like those mentioned above do not provide an answer to the fundamental question. None of the attempts has provided a whole picture of the phenomenon by tackling the three issues and clarifying interactions of syntax, semantics, and phonology in deriving the seven contracted forms in (1).

This paper attempts to provide an answer to the above-mentioned fundamental question of what *to*-contraction is by settling the three long-standing issues. Section 2 summarizes basic facts about *to*-contraction and shows that the facts defy analyses which are based on syntactic and phonological structure and ignore the semantic properties of the contracted forms. Section 3 provides a new characterization of it. The semantic process of grammaticalization is shown to be the dominant factor in the formation of the seven contracted forms. It is argued that the string of a verb plus *to* is contracted when it forms a modal-like semantic unit through this process. Section 4 lays out the mechanism of deriving the contracted forms on the basis of a modified version of the model of grammar proposed by Jackendoff (1990). The contracted forms are shown to be derived through the application of a semantics-phonology corresponding rule which forms a prosodic unit, called a Phonological Word, and a set of genuine phonological rules. Section 5 investigates the relation between *to*-contraction and syntax. The relevance of syntactic structure is shown by the nonoccurrence of the contracted form *wanna* in coordinate structures. Finally, section 6 treats a phonological phenomenon which is apparently identical to, but essentially different from, *to*-contraction. It is argued that the presence of a seemingly identical phenomenon at the lexical level and the postlexical level is not unnatural by showing that, in English, there are other cases where a single phonological phenomenon takes place at the two different levels.

2. Basic Facts

2.1. Syntactic Conditions on *To*-Contraction

The most well-known syntactic condition on *to*-contraction is that *wh*-traces block the occurrence of the contracted form *wanna*, while NP-traces and PROs do not. The examples in (2) show that traces left by *wh*-movement, including question formation ((2a)), relative clause formation ((2b)), cleft formation ((2c)), and topicalization ((2d)), block the occurrence of the contracted form *wanna*. Because the verb *want* and the infinitive marker *to* are adjacent to each other at the surface level, *to*-contraction is expected to occur. In fact, however, the phenomenon does not take place. This fact is said to be attributed to the presence of the empty category *wh*-trace.

- (2) a. *Who do you wanna look at the chickens?
 (Who_i do you want t_i to look at the chickens?)
 b. *Name the person that you wanna look at the chickens.
 (Name the person that_i you want t_i look at the chickens.)
 c. *It's you that I wanna look at the chickens.

(It's you that_i I want t_i to look at the chickens.)

d. *Him, I wanna look at the chickens.

(Him_i, I want t_i to look at the chickens.)

(Postal and Pullum (1978:3))

The presence of an empty category between *want* and *to* does not always prevent contracted forms from occurring. The examples in (3) show that the presence of the empty category PRO does not block the application of contraction. In the same vein, the examples in (4) indicate that traces left by NP-movement, including raising and passivization, do not block the occurrence of *usta* and *be suposta*.¹

(3) a. I wanna look at the chickens.

(I_i want PRO_i to look at the chickens.)

b. Teddy is the man I wanna succeed.

(Teddy is the man that_i I_j want PRO_j to succeed t_i.)

c. Which chickens do you wanna look at?

(Which chickens_i do you_j want PRO_j to look at t_i?)

(Postal and Pullum (1978:3))

(4) a. The beast *usta* provide amusement for the masses.

(The beast_i used t_i to provide amusement for the masses.)

b. He was *suposta* go out for a walk.

(He_i was supposed t_i to go out for a walk.)

(Postal and Pullum (1978:2))

The second syntactic condition on *to*-contraction is that an infinitival clause must be the complement of a predicate. If infinitival clauses are not the complements of the relevant predicates, contraction is impossible. This is shown by the examples in (5) and (6).

(5) a. *I don't want anyone who continues to wanna stop wanting.

(I don't want [anyone who continues to want] to stop wanting.)

(Postal and Pullum (1982:125))

b. *One must wanna become an effective consumer.

(One must want [(in order) to become an effective consumer].)

(Postal and Pullum (1982:131))

(6) a. *I wanna, be precise, a yellow, four-door De Ville convertible.

(I want, to be precise, a yellow, four-door De Ville convertible.)

(Postal and Pullum (1978:17))

b. *I don't wanna flagellate oneself in public to become standard practice in this monastery.

(I don't want [to flagellate oneself in public] to become standard practice in this monastery.)

(Postal and Pullum (1982:124))

In (5), the verb *want* is an intransitive verb, and the infinitival clauses immediately following it are not its complement. In (5a), the NP *anyone who continues to want* is the subject of the complement of the main verb, and the verb *want* in its final position is an intransitive verb. There is no direct grammatical relation between the verb and the infinitive marker *to*. The same is true of (5b). The infinitive clause functions as an adjunct which expresses purpose.

In (6), the verb *want* is a transitive verb, but the contraction is blocked because the infinitival clauses immediately following it are not its complements. In (6a), *to be precise* is a parenthetical expression and serves as an adjunct. The complement of *want* is the NP *a yellow, four-door De Ville convertible*. In (6b), *to flagellate oneself in public* is not the complement of *want* but the subject of its complement. Its complement is *to flagellate oneself in public to become standard practice in the monastery*.

The third syntactic condition on *to*-contraction is that the preposition *to*, although phonologically identical with, and semantically similar to, the infinitive marker, is not merged with the preceding predicate. This is exemplified in (7).

- (7) a. They {*wanna,/want, to} all intents and purposes, to destroy us.
 b. I {*hafta/have to} the present day avoided eating the flesh of such creatures.
 c. I'm {*gonna/going to} the meeting of the United Ornithologists for Great Britain.

(Postal and Pullum (1978:17))

In (7a), the preposition *to* heads the parenthetical adverbial *to all intents and purposes*. The word does not have any direct grammatical relationship with the verb *want*. The same reasoning applies to (7b). The PP *to the present day* is a parenthetical adverbial. There is no direct grammatical relationship between *have* and the PP. In (7c), the contracted form *gonna* is expected to be derived, for the PP headed by *to* can be identified as the complement of the verb *go*, which denotes a movement of its subject NP. In fact, however, they are not merged.

2.2. A Phonological Condition on To-Contraction

In addition to the three syntactic conditions on *to*-contraction, a phonological condition also regulates the distribution of the contracted forms. The phonological condition is very simple. One of the following strings of segments is necessary to derive the contracted forms: /(n)t/ (for *wanna*, *gonna*, *gotta*, and *oughta*), /ft/ (for

hafta), and /st/, which is assumed to be derived from /-zd/ (for *usta* and *suposta*). The presence of an additional segment or additional segments blocks their formation. For example, addition of suffixes like *-s* and *-ed* to *want* blocks the occurrence of *wanna*, as the examples in (8) show.

- (8) a. He {wants to/*wanna} look at the chickens.
 b. He {wanted to/*wanna} look at the chickens.

2.3. Problematic Cases

The syntactic and phonological conditions presented in the two preceding sections say that *to*-contraction occurs when they are all satisfied. However, they face difficulties. There are cases where *to*-contraction is prohibited, although the conditions on it are all satisfied.

They cannot make correct predictions about the occurrence and nonoccurrence of *to*-contraction in the following pairs of sentences, where the (a)-examples have a contracted variant, while the (b)-examples do not have any contracted variant.

- (9) a. You {ought to/oughta} be a secret agent.
 b. You are {thought to/*thoughta} be a secret agent.
 (10) a. I {want to/wanna} play the bagpipes.
 b. I am {wont to/*wonna} play the bagpipes.
 (11) a. The beast {used to/usta} provide amusement for the masses.
 b. The beast {refused to/*refusta} provide amusement for the masses.
 (12) a. He was {supposed to/suposta} go out for a walk.
 b. He {proposed to/*proposta} go out for a walk.

((9)-(12): Postal and Pullum (1978:2))

In (9), the string *ought to* in (9a) can be contracted to *oughta*, while the string *thought to* cannot be contracted. The syntactic and phonological conditions presented above predict that the contracted form *thoughta* would be derived for the following two reasons. First, *thought to* [θɔ:t tə] has a phonological form which is nearly identical with *ought to* [ɔ:t tə], the only difference being that the former begins with the consonant [θ], while the latter begins with the vowel [ɔ:]. More importantly, the (b)-example is a passive sentence, and the NP trace of the subject *you*, which does not block the application of contraction, intervenes between *thought* and *to*, as shown in (13).

- (13) You_i are thought t_i to be a secret agent. (=9b))

Thus, the string *thought to* in (9b) meets both the syntactic and phonological conditions on *to*-contraction. In fact, however, *to* must not be merged with *thought*.

The same is true of (10b), (11b), and (12b). In these cases, the infinitive marker *to* is expected to be contracted for the following two reasons. The first

reason is that the adjective *wont* [wónt] and the verbs *refused* [rifjú:zd] and *proposed* [prəpóuzd] have phonological forms which are either completely or nearly identical with the verbs *want* [wónt], *used* [jú:zd] and *supposed* [səpóuzd]. The second reason for the expectation is that the empty category PRO, which does not block the application of contraction, intervenes between the infinitive marker *to* and each predicate, as shown in (14)-(16).

(14) I am wont [PRO to play the bagpipes].(=(10b))

(15) The beast refused [PRO to provide amusement for the masses].(=(11b))

(16) He proposed [PRO to go out for a walk].(=(12b))

We are thus led to the conclusion that *to*-contraction is expected to take place in (10b), (11b) and (12b) on the grounds that these cases meet the syntactic and phonological conditions. Actually, however, that expectation is false, as indicated by the facts in (10)-(12).

The pairs of contrasts in (9)-(12) indicate that another factor enters into *to*-contraction. In particular, they raise the following issues concerning the occurrence and nonoccurrence of *to*-contraction:

(17) Why is it that *to*-contraction is prohibited in some classes of cases where the syntactic and phonological conditions are met?

There are two possibilities. One is that a semantic factor regulates the distribution of the contracted forms. The other is that a pragmatic factor regulates it. The latter possibility is falsified by the fact that *to*-contraction, which is an optional process, takes place regardless of pragmatic factors like context, focus/presupposition, speech rate, and so forth. It is highly likely then that a semantic factor also regulates its occurrence and nonoccurrence. The next question is what kind of semantic factor regulates the distribution of the seven contracted forms in (1).

3. A Characterization of the Contracted Forms

3.1. The Semantics of Contracted Forms

The most prominent semantic property of the contracted forms other than *wanna* is that they can be roughly paraphrased into modals, as indicated in (18)-(23).

(18) be going to → be gonna: will

(19) have to → hafta: must

(20) used to → usta: would

(21) have got to → have gotta: must

(22) ought to → oughta: must

(23) be supposed to → be suposta: should

Put differently, the original forms of the six contracted forms, which consist of two

or three words and do not form any syntactic constituents, are syntactically reanalyzed as unified or "frozen" forms and form semantic units corresponding to modals through a semantic shift where more concrete meanings are directed toward less concrete meanings. In fact, they lose their original meanings through the historical semantic process of grammaticalization, which is roughly defined as in (24) (cf. Meillet (1948), Benveniste (1968), Samuels (1972), Langacker (1977), Lightfoot (1979), Traugott (1982), Brinton (1988), and Newmeyer (1998), among others).

- (24) Grammaticalization: A semantic process in which either a certain word or a certain string of words gains a particular grammatical function and a particular meaning with a syntactic reanalysis and with the concomitant loss of its original meaning.

It does not seem to be unreasonable to say that *to*-contraction is possible when *to* and a predicate preceding it form a semantic unit and gain a particular grammatical function through grammaticalization.

This generalization is still weak, however. The contracted form *wanna* is excluded from the list of grammaticalized modals. It is not classified as a modal in the literature or dictionaries. Nor is empirical evidence, either syntactic or semantic, for its auxiliarihood presented in the linguistic literature. It is therefore necessary to present evidence, both syntactic and phonological, to ascertain whether or not *wanna* is identified as a modal.²

The following prediction follows. If *wanna* exhibits the same pattern of behavior as modals and the six other contracted forms with respect to syntactic tests for auxiliarihood, it can be identified as a modal-like element. In this case, the above-mentioned generalization is maintained. If, on the other hand, it does not exhibit the same pattern of behavior as modals or the six other contracted forms with respect to syntactic tests for auxiliarihood, it cannot be identified as a modal-like element. In this case, the generalization cannot be maintained, and the presence of the contracted form *wanna* would remain to be a mystery.

3.2. *The Syntax of the Contracted Forms*

Six syntactic tests for auxiliarihood, including VP ellipsis, *do*-support, subject-auxiliary inversion, VP preposing, quantifier floating, and the possibility of cooccurrence with a modal, are presented to ascertain whether the contracted forms, including *wanna*, are to be identified as modals or not.

3.2.1. *VP Ellipsis*

Modals and auxiliaries occur immediately before a gap created by VP-ellipsis. Typical examples are given in (25).

- (25) a. John can swim, and Mary can ____, too.
 (Asakawa and Kamata (1986:25))
 b. John hasn't told lies, but Mary will _____. (Schacter (1978:200))
 c. Tom was arrested by the FBI, and Dick was ____, too.
 d. Bill is hard for us to get along with, but Agnes isn't ____.
 (c-d: McCawley (1998:172))

If the seven contracted forms, including *wanna*, occur before a gap created by VP-ellipsis, they can be identified as modal-like elements. If, by contrast, they do not occur before such a gap, they cannot be identified as modal-like elements.

The seven contracted forms occur immediately before a gap created by VP-ellipsis. This is shown by the examples in (26).

- (26) a. ?John wants to swim, and I wanna ____, too.
 b. ?John's gonna swim in the river, and I'm gonna ____, too.
 c. John hasta swim in the river, and I hafta ____, too.
 d. John oughta swim in the river, and I oughta ____, too.
 e. John is suposta swim in the river, and I'm suposta ____, too.
 f. John usta swim in the river, and I usta ____, too.
 g. John's gotta swim the river, and I gotta ____, too.

The facts in (26) indicate that the contracted forms exhibit the same patterning as modals and can be identified as modal-like elements. The most important fact is that the contracted form *wanna* behaves like modals, as shown in (26a), and can also be identified as a modal-like element.

3.2.2. Subject-Auxiliary Inversion

Modals and auxiliaries are inverted and precede their subjects in yes-no questions, as shown in (27), and in sentences where a negative element is placed in sentence-initial position, as shown in (28).

- (27) a. Has Ann finished the report?
 b. Were you being followed?
 c. Will John have been drinking?
 (McCawley (1998:232))
- (28) a. Under no circumstances will I talk to him.
 (McCawley (1998:184))
 b. Never before had I seen such stupidity.
 (McCawley (1998:184))
 c. At no time did they reveal what they wanted.
 (McCawley (1998:582))

If the seven contracted forms precede their subjects in yes-no questions and

sentences where a negative element is placed in sentence-initial position, they can be identified as modal-like elements. If they do not exhibit such syntactic behavior, they cannot be identified as modal-like elements.

The five contracted forms not headed by *be* do not exhibit the same behavior as modals, as shown in (29)-(33). *Oughta* is the only exception in that it precedes its subject when it occurs in yes-no questions whose main verb is in its progressive form.

- (29) a. *Wanna you go there?
 b. Joo wanna go there? (Joo=Do you)
 c. *Never wanna I go there.
 d. ??Never do I wanna go there again.
- (30) a. ?Oughta you be doin' that?
 b. *Do you oughta go there?
 c. *Never oughta he go there.
 d. *Never does he oughta go there?
- (31) a. *Usta you go there?
 b. Dijoo usta go there (a lot)? (Dijoo=Did you)
 c. *Never in my life usta I go there.
 d. *Never in my life did I usta go there.
- (32) a. *Gotta you go there?
 b. Do you gotta go there?
 c. *Never gotta I go there again.
 d. Never do I gotta go there again.
- (33) a. *Hafta you go there?
 b. Do you hafta go there?
 c. *Never hafta you go there.
 d. *Never do you hafta go there.

The facts in (29)-(33) show that, as far as subject-auxiliary inversion is concerned, the seven contracted forms, including *wanna*, do not have a modal-like status.

3.2.3. Do-Support in Negative Sentences

It is a well-known fact that modals and auxiliaries do not require *do*-support in negative sentences, as shown in (34)

- (34) a. You may not go.
 b. You can't smoke here.
 c. He hasn't come yet.

The contracted forms not headed by the auxiliary *be* exhibit peculiar behavior

with respect to *do*-support, as in (35).

- (35) a. I {don't wanna/didn't wanna/*wanna not/*wannan't} go there.
 b. I {*don't oughta/*didn't oughta/oughta not/*oughtan't} go there.
 (cf. I ought not to go there.)
 c. I {*don't usta/didn't usta/usta not/*ustan't} go there.
 d. I {don't gotta/*didn't gotta/gotta not/*gottan't} go there.
 e. I {don't hafta/didn't hafta/hafta not/*haftan't} go there.

In (35), none of the contracted forms can be accompanied by the contracted form *-n't*. Aside from this common property, the contracted forms can be classified into three classes with respect to *do*-support. One includes *wanna*. It always requires *do*-support and cannot be accompanied by the negative particle *not*. A second class involves *oughta*. It cannot be headed by *do* and followed directly by *not*. The third group contains *usta*, *gotta*, and *hafta*. They are either headed by *do* or followed directly by *not*.³

Most important in (35) is the fact that the negative form **wanna not* is prohibited, while the four other contracted forms not headed by *be* can be followed by the negative particle *not*. This fact indicates that, among the five contracted forms not headed by *be*, only *wanna* does not have a modal-like property with respect to *do*-support in negative sentences. In other words, the degree of auxiliarihood of *wanna* differs from the four other contracted forms (*oughta*, *usta*, *gotta*, and *hafta*).

3.2.4. VP Preposing

Modals and auxiliaries occur immediately before a gap created by VP preposing, whereby a verb and its object NP are fronted before the subject. Typical examples are given in (36).

- (36) a. John intends to make a table, and make one he will ____.
 (Emonds (1976:31))
 b. He said I would like her, and like her I do _____. (Emonds (1976:41))
 c. Mary once predicted that John would pass an exam eventually, and
 pass one he now has _____. (Emonds (1976:31))

If the seven contracted forms exhibit the same behavior as modals and auxiliaries, they can be identified as modal-like elements. If, on the other hand, they do not occur immediately before a gap created by VP preposing, they cannot be identified as modal-like elements.

The seven contracted forms in (1) occur immediately before a gap created by VP preposing, as shown in (37). It is generally observed that contracted forms do not occur before a gap created by VP-preposing. For example, Pullum (1997: 100)

observes that VP preposing "appears to be limited to VPs following finite auxiliary verbs" like *will*, *do*, and *has*.⁴ Actually, however, it is possible for them to occur in this syntactic environment when other syntactic environments are elaborated.⁵ In particular, the addition of subordinate clauses like the *when*-clause in (37a) and the *until*-clause in (37c), the addition of modality expressions like *I think* and *I guess* in (37d), (37e), and (37g), and the occurrence of *so* instead of *and* in the other cases.

- (37) a. First he says I had to wash the dishes, and wash them I was gonna _____, when in he comes again and says (to) never mind, I didn't hafta.
- b. ?He said I'd be able to repair the watch, so repair it I wanna _____.
- c.?(?)He said I'd always wash the dishes, and wash them I usta _____ until we broke up.
- d. ?He has said one of us is supposed to wash the dishes, and I think wash them I hafta _____.
- e. He told her I'd wash the dishes, so wash them, I guess, I oughta _____.
- f. ?He has told her to wash the dishes, so wash them she is suposta _____.
- g. He has told me to wash the dishes, and wash them I guess I (have) gotta _____.

The facts in (37) indicate that *wanna* and the six other contracted forms can be identified as modal-like elements.

3.2.5. Quantifier Floating

It is generally observed that adverbs and floating quantifiers, characterized as adverb-like elements, can occupy the position between the position of modals or auxiliaries and that of main verbs. Typical examples of adverbs occurring between an auxiliary-element and a verb are given in (38), and those of floating quantifiers, in (39).

- (38) a. You could hardly hear what he was saying. (McCawley (1998:663))
 b. Horatio has evidently lost his mind. (Jackendoff (1972:50))
- (39) a. The boys can all play tennis. (McCawley (1998:632))
 b. The children were all singing. (McCawley (1998:99))

Floating quantifiers can intervene between a contracted form like *wanna* and a bare infinitive. This is shown in (40).

- (40) a. We wanna all pull together, so one-two-three, now ...
 b. We're gonna all tell the same story, or this time we're gonna all catch hell.
 c. We usta all sit around the fire and toast marshmallows.
 d. They're sposta all get the same grade. (*sposta*=a variant of *suposta*)
 e. We've gotta all do it the same way.

- f. We hafta all be as careful as we can.
 g. We oughta all be as careful as we can.

(a, c-f: Bolinger (1981:202))

The facts in (40) strongly indicate that the contracted forms, including *wanna*, have a modal-like property.

3.2.6. Cooccurrence with modals

Modals cannot occur with another modal, as indicated in (41).

- (41) a. *John will can come.
 b. *John may must go.

It is worth investigating whether or not the contracted forms under discussion can cooccur with a modal.

Contracted forms can cooccur with a modal when their cooccurrence is semantically compatible. Typical examples are given in (42).⁶

- (42) a. You {must/may/*can/*should/will/would/don't} wanna buy a new car.
 b. You {*must/*may/*can/*should/*will/*would/*don't} oughta buy a new car.
 c. You {*must/*may/*can/*should/*will/would/*don't/didn't} usta buy a new car.
 d. You {must/may/*can/should/will/would/don't} hafta buy a new car.

It follows that the contracted forms are not seen to be genuine modals but modal-like elements.

3.2.7. Summary

The results of the six syntactic tests are summarized in TABLE 1.

	occurrence before a VP-Ellipsis gap	inversion	do-support	occurrence before a VP-preposing gap	quantifier floating	cooccurrence with a modal
wanna	OK	*	obligatory	OK	OK	OK
oughta	OK	OK	*	OK	OK	*
be gonna	OK	---	---	OK	OK	OK
hafta	OK	*	optional	OK	OK	OK
usta	OK	*	optional	OK	OK	OK
gotta	OK	*	optional	OK	OK	OK
be suposta	OK	---	---	OK	OK	OK

TABLE 1

The seven contracted forms do not exhibit uniform syntactic distribution, and the degree of their auxiliiation varies. Among the seven contracted forms, *oughta* has

undergone the process to the highest degree, and *wanna* to the lowest degree. The five other forms are identified as intermediate elements.

The varying degree of auxiliation does not necessarily imply that the contracted forms cannot be identified as modal-like elements. The contracted forms including *wanna*, whatever we may label them, exhibit modal-like syntactic behavior. It is not unreasonable to conclude that they are not prototypical modals like *may* and *must* but may be called modal-like elements.⁷

3.3. The Phonology of the Contracted Forms

The contracted forms *wanna* and *gonna*, among the seven contracted forms, have some variants in pronunciation and can be reduced to forms containing two schwas, as shown in (43).

- (43) a. I wanna go there alone. [wʌnə, wɔnə, wʌnə, wənə]
 b. What are you gonna study there? [gɔnə, gʌnə, gʌnə, gounə, gənə]
 (Suiko (1978:307))

Their capability of being reduced serves as evidence for the claim that they have the status of modals. The most prominent phonological characteristic of modals and auxiliaries is that their vowels are generally reduced unless they occupy the position immediately before a syntactic gap. Typical examples are:

- (44) a. John could ([kəd]) try.
 b. Can ([kən]) you tell me the way to the station?
 c. Because he had ([əd]) tried, they agree to it.
 (Selkirk (1984:362))

The claim that *wanna* and *gonna* are both modal-like elements is also supported by their phonological behavior, which is equivalent to that of modals.

However, the five contracted forms other than *wanna* and *gonna*, as shown in (45), are not reduced forms containing two schwas.⁸

- (45) a. hafta: [hæftə, *həftə]
 b. usta: [ju:stə, ??jəstə]
 c. gotta: [gɔtə, *gətə]
 d. oughta: [ɔ:tə, *ətə]
 e. (be) suposta: [səpoustə, ??səpəstə]

This fact *prima facie* weakens the claim that the modal-like status of the contracted forms is also reflected in their phonological forms. However, the fact does not undermine the claim or serve as a counterexample to it. The lack of reduced forms of the five contracted forms other than *wanna* and *gonna* naturally follows from their phonological structures.

The phonological structures of the five contracted forms are summarized in

(46).

- (46) a. CVCCə : hafta
 b. (CV)(C) \overline{VC} (C)ə: usta, oughta, suposta
 c. CVCə: gotta

In (46a), a short unreduced vowel (V) is followed by a consonant cluster consisting of two consonants, and the string of segments VCC constitutes a "strong cluster" in the sense of Chomsky and Halle (1968) (henceforth, *SPE*). The same is true of (46b). A long unreduced vowel is followed by either one consonant or a cluster of two consonants. Both \overline{VC} and \overline{VCC} also form a "strong cluster" in the *SPE* sense.

The lack of a reduced variant of *gotta* still remains to be solved. Since it has exactly the same phonological structure as *wanna*, the complete reduction would be expected. Actually, however, it is not completely reduced. This problem is resolved if viewed from another angle. The contracted form *gotta* has the geminate /t/, which is capable of forming a strong cluster, in its input form. If a reduction rule applies at the level where the geminate exists, the vowel is not reduced.

The existence of "strong clusters" in *hafta*, *usta*, *oughta*, *suposta*, and the input form of *gotta* explains the lack of their reduced forms. Recall that "strong clusters" in the *SPE* sense are likely to receive word stress. In other words, they are not likely to be reduced to forms containing a schwa. That is why the four contracted forms do not have any reduced variants.

3.4. *A Descriptive Generalization*

The syntactic and phonological behavior of the seven contracted forms leads us to conclude that the semantic process of grammaticalization is the most crucial factor in their formation. We can formulate the following descriptive generalization.

(47) Descriptive Generalization

To-contraction occurs when the infinitive marker *to* and a predicate preceding it form a modal-like semantic unit through the semantic process of grammaticalization.

3.5. *Explanations for the Cases Where To-Contraction Does Not Take Place*

The descriptive generalization in terms of grammaticalization enables us to explain the nonoccurrence of contraction in some classes of cases presented in section 2. In those cases where contraction is impossible, grammaticalization does not occur, and the infinitive marker *to* and the preceding predicate do not form a modal-like semantic unit.

In the examples in (2), repeated here as (48a-d), *to*-contraction is impossible, a fact which has been assumed to be attributed to the presence of a *wh*-trace between *want* and *to*.

- (48) a. *Who do you wanna look at the chickens?
 b. *Name the person that you wanna look at the chickens.
 c. *It's you that I wanna look at the chickens.
 d. *Him, I wanna look at the chickens.

The existence of a *wh*-trace is not necessarily a crucial factor for blocking contraction in the above examples. The blocking effect can also be explained in semantic terms.

We will make two assumptions here. One is that grammaticalization also refers to semantic structure. The other assumption is that elements which undergo *wh*-movement are in situ at the semantic representation which is relevant to grammaticalization. If these two assumptions are on the right track, the blocking effect in (48) is explained as follows. At the semantic representation where grammaticalization occurs, the verb *want* and the infinitive marker *to* are not adjacent to each other. For the subject of an infinitival complement which undergoes movement in syntax remains in situ. As a result, grammaticalization is blocked by the subject of an infinitival complement.

The assumption that elements which undergo *wh*-movement in syntax remain in situ in the semantic representation receives a piece of support on intuitive grounds. The most prominent characteristic of *wh*-movement is that an element which has undergone the operation retains its grammatical relation to a predicate which lies left to the gap left by movement. In the examples in (48), the fronted elements are all identified as the subjects of the respective infinitival complements.

By contrast, elements which have undergone NP-movement like passivization do not have such a property. They do not retain their grammatical relations to predicates which lie left to their original positions. The subject of a passive sentence is not a object NP of the passivized predicate any longer, although it is originally in object position. This implies that elements fronted through NP-movement do not have to be in situ in the semantic structure to which grammaticalization refers. That is, there is no intervening element between a predicate and the infinitive marker *to* in the semantic representation of a passive sentence which is relevant to grammaticalization. In such a representation, grammaticalization can take place, and, as result, contraction is permitted to occur.

The semantic account also applies to the intransitive cases in (5), repeated here as (49a) and (49b).

- (49) a. *I don't want anyone who continues to wanna stop wanting.
 b. *One must wanna become an effective consumer.

The intransitive verb *want* and the infinitive marker *to* cannot form any modal-like

semantic unit in these cases for lack of the direct grammatical relation between them. Contraction does not occur, as the generalization in (47) predicts.

The transitive cases in (6), repeated here as (50a) and (50b), can be explained in exactly the same manner. There is no direct grammatical relation between *want* and *to*, as mentioned in section 2, and contraction is naturally impossible.

(50) a. *I wanna, be precise, a yellow, four-door De Ville convertible.

b. *I don't wanna flagellate oneself in public to become standard practice in this monastery.

The nonoccurrence of contraction in the cases in (7), repeated as (51a-c) below, where the predicates and the preposition *to* are superficially adjacent to each other, can also be accounted for in terms of grammaticalization.

(51) a. They {*wanna,/want, to} all intents and purposes, to destroy us.

b. I {*hafta/ have to} the present day avoided eating the flesh of such creatures.

c. I'm {*gonna/going to} the meeting of the United Ornithologists for Great Britain.

The process of grammaticalization has affected a limited class of lexical items, and has not affected the preposition *to*. Thus, the preposition, although it shares both semantic and phonological properties with the infinitive marker *to*, cannot be merged with the preceding predicate to form contracted forms.⁹

Finally, the problematic cases for empty-category-based syntactic analyses in the (b)-examples of (9)-(12), repeated here as (52)-(55), can be explained only in terms of the process of grammaticalization.

(52) You are {thought to/*thoughta} be a secret agent.

(53) I am {wont to/*wonna} play the bagpipes.

(54) The beast {refused to/*refusta} provide amusement for the masses.

(55) He {proposed to/*proposta} go out for a walk.

The most crucial reason for the nonoccurrence of *to*-contraction in (52)-(55) is that none of the strings of words where the infinitive marker *to* is the second member has undergone the process of grammaticalization or formed any modal-like semantic units. In none of the examples has the original meaning of the relevant strings of words been lost. The relevant predicates (*thought*, *wont*, *refused* and *proposed*) still maintain their original meanings and do not have modal-like meanings. That is why *to* cannot be merged with the preceding predicate.

3.6. Summary

This section has shown that the contracted forms, including *wanna*, are formed through the semantic process of grammaticalization and obtain the modal-like status.

Their modal-like status is proved by syntactic and phonological tests for auxiliarihood. They are not prototypical modals but can be identified as modal-like elements.

The grammaticalization account of *to*-contraction has one great advantage over its genuine syntactic analyses. It enables us to account for the crucial cases in (9b), (10b), (11b) and (12b), which defy syntactic and phonological analyses. Only through a grammaticalization account can we account for the nonoccurrence of contraction in these cases.

4. Deriving the Contracted Forms

4.1. Background

Having demonstrated on syntactic, semantic and phonological grounds that the seven contracted forms, including *wanna*, can be identified as a modal-like element, I now turn to a consideration of a theoretical characterization of the synchronic process of generating their surface phonological forms. Before presenting the characterization, however, I will lay out background assumptions for it.

I assume in the first place that grammar consists of three components: the syntactic component, the semantic component, and the phonological component. In addition, I assume in line with Jackendoff (1990) and Okazaki (1998) that the three component in grammar form their own autonomous modules and are linked with each other by correspondence rules in Jackendoff's sense.¹⁰

On these assumptions, for example, genuine syntactic rules apply in the syntactic component without any reference to semantic or phonological representations. Syntactic phenomena which interact with semantic information of the kind that is irreducible to any syntactic representation are seen as interface phenomena and treated by correspondence rules. This is because semantic structures are invisible to the syntactic component.

The same holds for both the semantic component and the phonological component. There are two kinds of semantic phenomena and two kinds of phonological phenomena. In particular, they are also classified into genuine semantic and phonological phenomena, which are both treated in the respective components, and semantic and phonological phenomena interacting with information in the other components, which are to be treated by correspondence rules.

4.2. The Mechanism of Deriving Contracted Forms

I propose on the basis of the above-mentioned basic assumptions that the contracted forms are derived through three stages, which are summarized in (56).

(56) a. The formation of a modal-like semantic unit which is roughly

- represented as [*MODAL V to*] through grammaticalization
- b. The formation of a phonological unit, called a Phonological Word (PW), which exactly corresponds to the semantic unit [*MODAL V to*]
 - c. The application of phonological rules which, applying within a PW, derive the surface phonological shapes of the contracted forms

The first stage ((56a)) is achieved by the historical semantic process of grammaticalization with the concomitant loss of the original meaning of a predicate, as demonstrated in section 2. This stage is indispensable in the formation of the contracted forms. They cannot emerge without this stage.

The second stage ((56b)) means that there is a phonological unit whose formation can ultimately be attributed to a semantic representation. Since semantic representations are invisible to the phonological component in the organization of grammar postulated here, the formation of a PW whose elements are a verb and *to* is best treated by a correspondence rule. The rule relevant to forming the contracted forms is formulated as in (57).¹¹

- (57) The semantic unit [*MODAL V to*] corresponds to the phonological unit [*PW V to*].

The PW in (57) is a phonological unit which is postulated in a stream of theories called prosodic phonology, which shares with us the assumption that phonological representations are autonomous in that they are not necessarily isomorphic to syntactic representations (Nespor and Vogel (1986), Selkirk (1986), and Hayes (1989), among others). In particular, it is postulated that phonological units have independent structures and are hierarchically organized as roughly represented in (58).

(58) Prosodic Hierarchy

- () Utterance
 () Intonational Phrase
 ()() Phonological Phrase
 ()()() Clitic Group
 ()()()()() Phonological Word

The third stage ((56c)) is the final stage for deriving the surface phonological manifestations of the contracted forms. Two segmental rules are operative at this stage. One is a rule which deletes /t/ after /n/, which is a modified prosodic phonological version of Suiko's (1978:310) rule. The other rule deletes /t/ before an unstressed vowel, which is also a modified prosodic version of Suiko's (1978:307) rule. These rules apply within a PW and are reformulated within a framework of prosodic phonology, as in (59).¹²

- (59) a. $t \rightarrow \phi / [_{PW} \dots n _ \dots]$
 b. $t \rightarrow \phi / [_{PW} \dots _ [V, -stress]]$

Other rules are also operative at the final stage of derivation. They are two destressing rules and a vowel reduction rule. The two destressing rules involve a rule which destresses a vowel in so-called function words, to which pronouns, modals, auxiliaries, conjunctions, and prepositions belong, and a special destressing rule which applies only to the contracted forms. The former, generally called Monosyllabic Destressing, is roughly formulated as follows on the generally accepted assumption that function words receive stress at the underlying phonological representation.

- (60) Monosyllabic Destressing:

Monosyllabic function words correspond to unstressed syllables.

This rule is a general rule which has been postulated for an account of stress behavior of function words. More importantly, it refers to the category "function word," which has been assumed to be an intuitive label in syntax. Thus, it is characterized as a syntax-phonology correspondence rule.

The latter rule is a minor optional rule which treats the destressing in the first syllable in *wanna* and *gonna*. It is roughly formulated as in (61).

- (61) Optional Destressing:

A short vowel in an open syllable of contracted forms is optionally destressed.

The vowel reduction, which is brought about by destressing, is treated by the following general rule:

- (62) Vowel Reduction:

$[V, -stress] \rightarrow \text{ə}$

Having presented the devices relevant to deriving the contracted forms, I now turn to presenting the derivations of the contracted forms. Among the seven contracted forms, *wanna* and *gonna* are the most complex cases. Their derivations proceed as in (63).

(63) a. <i>wanna</i>	b. <i>gonna</i>
[v wɔnt][[_{tw} tu:] ...]	[v gouin][[_{tw} tu:]... syntax]
[_{MODAL} wɔnt tu:]	[_{MODAL} gouin tu:] semantics
<u>[_{PW} wɔnt t̩:]</u>	<u>[_{PW} góuin t̩:]</u> phonology
u:	u: (60)
ə	ə (62)
	n ŋ → n
ϕ	n/a (59a)
ϕ	ϕ (59b)
n/a	ɔ ou → ɔ
wɔnə	gɔnə output
a'. the reduced variant of <i>wanna</i>	b'. the reduced variant of <i>gonna</i>
ɔ	ɔ (61)
ə	ə (62)
wənə	gənə output

The contracted form *wanna* is derived through the formation of a PW which exactly corresponds to a modal-like semantic unit and the application of phonological rules. Before the application of the relevant phonological rules, the modal-like semantic unit *want to* is formed through grammaticalization. In fact, the semantic unit corresponds to a PW in the phonological component by the correspondence rule in (57). At the first stage of derivation, the destressing of the vowel in *to* achieved through the application of the correspondence rule in (61), with the concomitant vowel reduction. At the next stage, rules (59a) and (59b) apply to derive the form /wɔnə/.

The completely reduced variant /wənə/ is derived through the application of rule (62). This reduction is seen as a semantics-phonology interface phenomenon, for the rule refers to the semantic unit which *want* and *to* form.

The derivation of *gonna* is a little different from that of *wanna*. The difference lies at the second stage. Rule (59a) does not apply to this case, for *going* does not end with /-nt/ but with /-ŋ/. Before the stage where rule (59b) applies, the word-final /ŋ/ is changed into /n/. Then, rule (59b) applies to the string /gouin tə/ and produces the phonological form /gounə/. At the final stage, a minor phonological rule optionally applies to /gounə/, turning the diphthong /ou/ into the short vowel /ɔ/.

The five contracted forms other than *wanna* and *gonna* are derived in a different manner. The contracted form *hafta* is not affected by either (59a) or (59b). The only rule to apply to it is Monosyllabic Destressing in (60) and the automatic

vowel reduction. The optional destressing rule in (61) does not apply, for the first syllable of *hafta* is not an open syllable but a closed syllable. It ends with the consonant cluster /-ft/

The contracted forms *gotta* and *oughta* are derived through the application of rules (60) and (59b). Their derivations are given in (64a) and (64b).

(64) a.	<i>gotta</i>	b.	<i>oughta</i>	
	[v gɔt][[w tu:] ...		[v ɔ:t][[w tu:]...]	syntax
	[_{MODAL} gɔt tu:]		[_{MODAL} ɔ:t tu:]	semantics
	<u>[_{PW} gɔt t̩:]</u>		<u>[_{PW} ɔ:t t̩:]</u>	phonology
	u:		u:	(60)
	ə		ə	(62)
	n/a		n/a	(59a)
	ϕ		ϕ	(59b)
	gɔtə		ɔ:tə	output

Monosyllabic destressing affects the vowel of *to*, and the vowel is reduced by rule (62). Rule (59a) does not apply to either of them. Finally, rule (59b) applies. It deletes the word-initial /t/ in *to* and erases the geminate /tt/, which is not allowed to occur at the surface level.

The lack of completely reduced pronunciations like *[gətə] and *[ətə] is explained if rule (61) is ordered before rules (59a) and (59b). Before the application of the two rules, the geminate /-tt-/ exists. Thus, the structural description of rule (61) is not met. Their first syllables are not open syllable but a closed syllable ending with /-t/.

The contracted forms *usta* and *(be) suposta* are derived in a different manner. Another rule must be postulated to derive them. The relevant rule is a backward assimilation rule which devoices a voiced consonant immediately before a voiceless consonant. The rule is formulated as in (65).

(65) C → [-voice]/____ [C, -voice]

If rule (65) is ordered before rules (59a) and (59b), the contracted forms are correctly derived.

The derivations of *usta* and *be suposta* proceed as follows:

(66) a. usta	b. suposta	
[v ju:zd][[w tu:] ...	[v səpouzɔd][[w tu:]...]	syntax
[_{MODAL} ju:zd tu:]	[_{MODAL} səpouzɔd tu:]	semantics
<u>[_{PW} jú:zd tù:]</u>	<u>[_{PW} səpóuzɔd tù:]</u>	phonology
u:	u:	(60)
ə	ə	(62)
t	t	(65)
s	s	(65)
n/a	n/a	(59a)
ϕ	ϕ	(59b)
jú:stə	səpóustə	output

Characteristic of the derivations in (66) is that rule (65) applies twice to produce the consonant cluster /-stt/. The other aspects of the derivations are the same as those of *wanna* and *gonna*.

4.3. Summary

In this section, I have proposed a set of rules to derive the seven contracted forms in (1). The semantic process of grammaticalization has been shown to be the most dominant factor in producing the peculiar colloquial forms. They are derived mainly through the application of the semantics-phonology correspondence rule in (57) and the two genuine phonological rules in (59).

Finally, the rough relation among the three linguistic representations of a sentence containing the contracted form *wanna* is given in (67). It indicates that the syntactic representation is not isomorphic to either the semantic or the phonological representation and that the semantic representation is isomorphic to the phonological representation.

(67) a. I [want [to look at the chickens]].	syntactic units
b. I [[want to][look at the chickens]].	semantic units
c. I [[wanna][look at the chickens]].	phonological units

5. The Relevance of Syntactic Structure

5.1. Facts

The grammaticalization-based account of *to*-contraction has been shown to be adequate in that it makes correct predictions about the possibility of contraction in a wide range of much-discussed cases. However, it makes wrong predictions about the possibility of contraction in cases like (68) and (69).

- (68) a. I want to sing and to dance.
 b. *I wanna sing and to dance.

(Postal and Pulum (1982:126))

- (69) a. I don't need or want to hear about it.
 b. *I don't need or wanna hear about it.

(Postal and Pullum (1982:126))

In (68) and (69), the string *want to* can naturally be identified as a semantic unit formed through the process of grammaticalization. In addition, the verb and the infinitive marker are adjacent to each other. They are expected to be merged. Actually, however, they cannot be merged.

There arises the possibility that the facts in (68) and (69) defy the grammaticalization account of *to*-contraction. My impression is that they do not defy the proposed account. It is highly likely that another factor is at work.

Examples (68) and (69) are both different in one essential respect from the much-discussed cases presented in section 2. They both contain a coordinate structure, which is called a "true coordinate." By true coordinates are meant coordinate structures which genuinely mean a logical coordination of conjuncts. In other words, conjuncts have the same status with each other. In (68), the infinitival clauses *to sing* and *to dance* are combined by the coordinate conjunction *and*. In (69), two VPs are coordinated which have the same infinitival complement *to hear about it*. The complement is placed in sentence-final position, and the verbs *need* and *want* are coordinated by the conjunction *or*.

The blocking of *to*-contraction is also observed in coordinates where conjuncts are combined by other uses of *and*. The first use to be noted is one which Goldsmith (1985: 135) calls the "temporal *and*" (Goldsmith (1985), Lakoff (1986), and Postal (1998)). A typical example is given in (70).

- (70) Harry is the only one who can hear a song and play it perfectly on the piano. (Goldsmith (1985:135))

In this example, the event which the first conjunct expresses precedes the event which second conjunct expresses.

To-contraction cannot take place in coordinate structures containing the temporal *and*, as indicated by examples (71) and (72).

- (71) a. I want to go to the store and to buy the cheese.
 b. *I wanna go to the store and to buy the cheese.
 (72) a. I want to go to the library and to borrow the book.
 b. *I wanna go to the library and to borrow the book.

A second subclass of *and* which is to be considered is the use which is paraphrased as *nonetheless*. A typical example is given in (73).¹³

- (73) We expect our graduate students to teach three courses and to finish a

dissertation on time.

In this example, the second conjunct *to finish a dissertation on time* expresses an event which is not easily to be expected from the event which the first conjunct expresses and, in fact, implies the speaker's surprise at the event.

In coordinate structures containing the conjunction *and* which is paraphrased as *nonetheless*, the infinitive marker *to* in the first conjunct cannot merge with the verb *want*. This is exemplified in (74) and (75).

(74) a. I want to drink and to stay sober.

b. *I wanna drink and to stay sober.

(75) a. I want to take all the courses for credit and to still be sane.

b. *I wanna take all the courses for credit and to still be sane.

The final subclass of coordinates to be examined involves what Goldsmith (1985) calls "the causal *and*." A typical example is given in (76).

(76) The child heard the news and broke into tears. (Goldsmith (1985:135))

A prominent semantic characteristic of this kind of coordinate is that an event which the first conjunct expresses serves as cause of the event which the second conjunct expresses.

In coordinates containing the causal *and*, the infinitive marker *to* in the first conjunct is not merged with the preceding *want*, as in (77).

(77) a. I want to drink that stuff and to live to be 100.

b. *I wanna drink that stuff and to live to be 100.

5.2. *A Syntactic Peculiarity of the Coordinate Structure*

The coordinate structure has a peculiar syntactic property. They function as islands for extraction. No element can be extracted out of them, unless extraction is across-the-board. This property has been captured by a constraint, called the Coordinate Structure Constraint, which is formulated as in (78), and by Ross's statement as to exceptions to the constraint in (79).

(78) The Coordinate Structure Constraint

In a coordinate structure, no conjunct may be moved, nor may any element contained in a conjunct be moved out of that conjunct.

(Ross (1986:98-99))

(79) There is an important class of rules to which [the Coordinate Structure Constraint] does not apply. These are rule schemata which move a constituent out of all the conjuncts of a coordinate structure.

(Ross (1986:107))

The constraint in (78) and the statement in (79) explain the acceptability difference among cases like those in (80).

- (80) a. This_i is the senator that I voted for t_i and Terry met t_i in Washington.
 b. *This_i is the senator that I voted for t_i and Terry met Bill Clinton in Washington.
 c. *This_i is the senator that I voted for Bill Clinton and Terry met t_i in Washington.

(Culicover and Jackendoff (1997:206))

In (80), the (a)-example is acceptable, and the (b)- and (c)-examples are unacceptable. This difference in acceptability is attributed to (78) and (79). In the (a)-example, two sentences are coordinated, and the NP *the senator* is extracted. Extraction of the NP seems to be prohibited by (78), but the NP is extracted from both sentences. Thus, example (80a) constitutes a legitimate exception to (78) in accordance with (79).

In the (b)- and (c)-sentences, on the other hand, extraction of the same NP is prohibited. Their unacceptability naturally follows from (78). The NP is extracted only from the first conjunct in the (b)-examples, and only from the second conjunct in the (c)-example. There is no reason of either of the two cases to constitute a legitimate exception to the Coordinate Structure Constraint in (78). That is why they are completely unacceptable.

Some additional pieces of evidence for (78) and (79) are given below. Extraction of an element from a coordinate structure is allowed only when it is extracted in an across-the-board manner.

- (81) [Which car]_i did Sally buy t_i, Marilyn borrow t_i, and Lucille wreck t_i?
 (Postal (1998:53))
- (82) a. [Which surgeon]_i did Sally date friends of t_i (*and a lawyer)?
 b. [Which surgeon]_i did Sally date friends of t_i (*and hope to date Bob)?
 c. [Which surgeon]_i did they say that Sally dated friends of t_i (*and Claude believed that Gwen was jealous)?
 (Postal (1998:52))

5.3. A Syntactic Constraint

The peculiar distribution of *wanna* in coordinate structures is equivalent in nature to extraction phenomena. Contracted forms cannot be derived when only one of the conjuncts is affected by contraction. It is not unreasonable to postulate that coordinate structures function as islands for *to*-contraction, as well.¹⁴

A constraint on contraction is formulated which refers to syntactic structure.

- (83) In a coordinate structure, no element in a conjunct may be merged, phonologically or morphologically, with any element outside of the coordinate structure.

The next issue is whether or not this constraint is able to account for the relevant cases presented in section 5.1.

5.4. Applications of the Syntactic Constraint

5.4.1. True Coordinates

True coordinates like those in (68) and (69) have coordinate structures both at the syntactic representations and at the semantic representations. Thus, the application of contraction in cases like (68) and (69) violates the constraint in (83).

5.4.2. The Temporal And

It seems that coordinates where conjuncts are combined by the temporal *and* do not seem to be true coordinates. However, Postal (1998:56ff.) argues that coordinates where conjuncts combined by the temporal *and* have properties of true coordinates. The first piece of evidence Postal presents is the existence of *and* itself, which functions as a conjunction in uncontroversial coordinate cases like (68) and (69). In addition, the conjunction *but* also occurs in coordinates which have a temporal interpretation.

- (84) The cheese_i which Frank went to the store but didn't buy _{ti} later spoiled.
(Postal (1998:56))

The second piece of evidence comes from facts about recursive possibilities. The number of conjuncts expands without limit in true coordinates. This unlimited iterability is also observed in coordinates where the conjuncts are combined by the temporal *and*.

- (85) the cheese which Harry went to the store, took out his wallet, grabbed a five dollar bill, bought _{ti}, went home, took a shower, and then ate _{ti}.
(Postal (1998:57))

Third, the temporal *and* is also subject to the principle governing the distribution of *and* in true coordinates. The conjunction can be absent from all but the last conjunct, but if absent from the K^{th} , it must also be absent from the $K-1^{\text{th}}$. The same is true of the temporal *and*.

- (86) a. the book which_i she went to the library, (and) defaced _{ti}, (and) tried to steal _{ti}, and had to pay for _{ti}.
b. *the book which_i she went to the library, and defaced _{ti}, tried to steal _{ti}, and had to pay for _{ti}.

(Postal (1998:57))

The final piece of evidence Postal (1998) presents contains cases like (86) where the NP in several of the conjuncts is extracted in an across-the-board manner. Recall that in (86), the NP *the cheese* is extracted from the third and the fifth conjunct.

If the four pieces of evidence Postal (1998) presents is correct, then coordinate structures containing the temporal *and* are seen to be true coordinates. Put differently, they are coordinates, both syntactically and semantically.

If two conjuncts combined by the temporal *and* form a true coordinate, the application of contraction to the first conjunct brings about a violation of the constraint in (83).

5.4.3. *The And With the Nuance of Nonetheless*

Conjuncts combined by the *and* paraphrased as *nonetheless* are not seen to form a true coordinate. Goldsmith (1985:138) suggests that coordinates like (73) is "one example of the larger class of phenomena which have in common that they rest on the divergence between syntactic and semantic representations not being too great." He further proposes (p.141) that the conjunction *and* in examples like (73) functions as a subordinator rather than a coordinator. This implies that the second conjunct which follows *and* functions as an adjunct.

The adjunct-like status of the second conjunct combined by the *and* paraphrased as *nonetheless* is demonstrated by the fact that they behave like adjuncts in some syntactic phenomena. Postal (1998:88-89) observes that like true adjuncts, they "can either be 'carried along' or 'left behind' in various VP-fronting constructions." For example, adjuncts are either carried along with a verb and its object NP, as shown in (87a), or left behind, as shown in (87b), in the VP-preposing construction.

(87) They said Val can eat 13 burgers without vomiting and

- a. [eat 13 burgers without vomiting] he can ____.
- b. [eat 13 burgers] he can ____ without vomiting.

(Postal (1988:88))

The second conjuncts in coordinates like (73) exhibit the same behavior, as in (88).

(88) They said Val can eat 13 burgers and still not vomit and

- a. [eat 13 burgers and still not vomit] he can ____.
- b. [eat 13 burgers] he can ____ and still not vomit.

(Postal (1998:88))

The next issue is whether the divergence between syntactic and semantic representations is reflected in syntactic structure or not. There are several views on the syntax-semantics divergence, but a plausible view, which is to be adopted here, is one which is not incompatible with the organization of grammar advocated in the present paper. The most natural assumption is that in coordinates which contain the *and* paraphrased as *nonetheless*, there exists a syntax-semantics mismatch. They are coordinate structures in the syntactic component but are not so in the semantic

component. The first conjunct is a main clause and the second conjunct a subordinate clause.

If the above-mentioned view of the syntax-semantics mismatch is correct, then the nonoccurrence of the contracted form *wanna* in (74) and (75) is explained as follows. If *to* were merged with *want* in the examples, a violation of (83) arises. *To*-contraction would affect only one of the two conjuncts. This can be explained only by referring to syntactic structure. If the possibility of contraction in the examples is determined by semantics, the contracted form *wanna* would be expected to be derived. The coordinates in (74) and (75) do not constitute any semantic coordinates, as Goldsmith (1985) observes. There are few semantic reasons for blocking the occurrence of *wanna* in them. It must be assumed that there is at least one aspect of the phenomenon where syntax regulates its occurrence.

5.4.4. The Causal And

Postal (1998:91-92) argues that two conjuncts combined by the causal *and* are not true coordinates for the following reasons. First, the coordinate quantifier *both* cannot head coordinates containing the causal *and*, as in (89).

- (89) a. *The guys in the Caucasus (all) both drink that stuff and live to be 100.
 b. *the stuff which_i the guys in the Caucasus (all) both drink t_i and live to be 100
 (cf. the stuff which_i the guys in the Caucasus drink t_i and live to be 100)

(Postal (1998:91))

Second, the adverb *respectively*, which denotes the interwoven dependency in true coordinates, cannot be attached in sentence-final position.

- (90) *the stuff which_i the guys in the Caucasus and the guys in Himalayas drink t_i and live to be 100, respectively

(Postal (1998:91))

Third, the causal *and* combines only two conjuncts and cannot combine more than two. If three conjuncts are combined by *and*, as in (91), a causal interpretation is not obtained. Only a logical-coordination reading is obtained.

- (91) The guys in the Caucasus drink that stuff, eat snails, and live to be 100.
 (Postal (1998:91))

Finally, the second conjunct behaves like an adjunct with respect to VP anaphora, as indicated in (92).

- (92) a. Sam refuses to [_{VP} fire a gun]_i, because his father once did e_i and killed someone.
 b. Sam refuses to [_{VP} fire a gun]_i, because his father once did e_i in order

to kill someone.

(Postal (1998:92))

If Postal's argument is on the right track, conjuncts combined by the causal *and* do not form a true coordinate. The causal *and* also functions as a subordinator. It is not unreasonable to postulate that two conjuncts combined by the causal *and* form a coordinate syntactically but not semantically.

If the possibility of contraction in examples like (77) were determined by semantic principles, it would be possible. There are also few semantic reasons for blocking the occurrence of the contracted form *wanna*. If, on the other hand, the possibility of contraction in coordinates is determined by a syntactic principle, its nonoccurrence in (77) is naturally accounted for. Its occurrence affects only one of the conjuncts in (77), and it is an violation of the syntactic constraint in (83). It is therefore not unreasonable to say that syntax also regulates contraction in coordinates like (77).

6. A Phonological Phenomenon Which is Similar to *To*-Contraction

6.1. Facts

In English informal speech, the word-final /t/ in content words and the word-initial /t/ in the infinitive marker *to* are often deleted, and their deletion produces phonological forms ending with /-nə/, which are similar to the contracted form *wanna*.

The deletion facts are classified into five types. The first type involves cases where a verb and the infinitive marker *to* are phonologically fused irrespective of a grammatical relation between the verb and the infinitival clause. Typical examples are given in (93) and (94).

- (93) a. I plan to ([plænə]) go there alone.
 b. I mean to ([mi:nə]) go there alone.
 c. He ran to ([rænə]) see whether he was still able to run.

(Suiko (1978:307))

- (94) a. The point I'm trying to ([trainə]) make is that it's just hopeless to me.
 b. That's what I'm trying to ([trainə]) get to.

(Suiko (1978:306))

The surface phonological forms in (93) and (94) seem to be derived through the same process that derives the contracted forms *wanna* and *gonna*, respectively. The surface forms [plænə], [mi:nə], and [rænə] are derived through the deletion of /t/ in the word-initial position of *to*. The surface form [trainə] is derived through the change of /ŋ/ into /n/ in the final position of *trying* and the deletion of /t/ in the

initial position of *to*.

The infinitival clauses in (93a), (93b), (94a), and (94b) are complements of the verbs. But the infinitival clause in (93c) is not the complement of the verb *run* but an adjunct. This indicates that phonological fusions like those in (93) and (94) are highly likely to occur irrespective of syntactic and semantic relations between a verb and an infinitival clause.

The same process is observed in the following strings of words: an adjective plus *to* ((95) and (96)), a noun plus *to* ((97)), and passive participle plus *to* ((98)). The surface phonological forms seem to be derived through the deletion of /t/ in the initial position of *to*.

- (95) a. He's prone to ([prounə]) jump to hasty conclusions.
 b. My boys are all very keen to ([ki:nə]) have bikes like everybody else.
 c. The meanin' of her silence is all to plain to ([pleinə]) see.
 (Suiko (1978:308))

- (96) a.??The children were all very impatient to ([impeɪf(ə)nə]) start.
 b.??This room is pleasant to ([plez(ə)nə]) work in.
 c.??She was wont to ([wɒnə, wɔnə, wounə]) get up at dawn.
 (Suiko (1978:308))

- (97) a. She's an impossible woman to ([wu:mənə]) live with.
 b. It isn't much fun to ([fʌnə]) be a teacher.
 c. I need a pen to ([penə]) write with.
 d. I am taking a train to ([trainə]) Chicago.
 (Suiko (1978:308))

- (98) a. They were taken to ([teɪk(ə)nə]) see a better doctor.
 b. No example was given to ([gɪv(ə)nə]) make the point.
 c. She was forbidden to ([fərbɪd(ə)nə]) read *Penthouse*.
 d. A Nikon was chosen ([tʃoʊz(ə)nə]) to take the pictures.
 (a: Emonds (1977:240); b-d: Suiko (1978:315))

Raising predicates and predicates which are possibly raising predicates have the same surface phonological manifestations as those in (95)-(98). This is shown in (99) and (100).

- (99) a. Wilson is certain to ([sɜrt(ə)nə]) take this hard.
 b. We just happen to ([hæp(ə)nə]) like to write on lots of unrelated topics.

(Emonds (1977:241))

- (100) a. He began to ([bəgænə]) shake.
 b. These problems remain to ([rɪmeɪnə]) be solved.

(Suiko (1978:315))

The surface forms in (99) and (100) are also derived through the deletion of /t/ in the initial position of the infinitive marker *to*.

The above deletion facts are neatly classified by Suiko (1978) on the basis of Carterret and Jones's (1974) phonetically transcribed text of English informal speech. As mentioned above, the facts imply the existence of two types of /t/-deletion rules, and Suiko (1978) argues that the contracted form *wanna* is derived through the application of both types of /t/-deletion rules.¹⁵

A possible implication of Suiko's proposal is that the phonological forms listed in (93)-(100) have the same status as the seven contracted forms in (1). Suiko (1978), however, does not discuss whether or not they have the same linguistic status that the contracted forms have.¹⁶

My proposal in this paper predicts, on the other hand, that the merged forms are not derived. The application of the two /t/- deletion rules for deriving contracted forms like *wanna* is restricted to strings of words which form a PW through the semantic process of grammaticalization. None of the examples in (93)-(100) has undergone this process. None of the phonologically merged forms whose second member is *to* loses its original meaning or gained any particular meaning of a particular semantic function. For example, predicates like *plan* in (93a), *prone* in (95a), and *happen* in (99b), which take an infinitival complement, do not have any modal-like meanings, even if they are phonologically fused with the infinitive marker *to*. In fact, however, the two deletion rules apply and produce contraction-like phonological forms. These facts have the possibility of defying the analysis of contraction proposed here.

The issue arises of whether or not facts like those in (93)-(100) have the same status as the seven contracted forms.

6.2. Evidence for a Genuine Phonological Phenomenon

I argue here that the phonological forms in (93)-(100) differ essentially from the contracted forms for the following reasons. The first reason for their different status is semantic in nature. As already mentioned in the previous section, none of the merged forms in (93)-(100) has undergone grammaticalization. None has gained a particular semantic function or meaning with the concomitant loss of its original meaning. Although they have phonological shapes similar to the contracted forms, they cannot be identified as semantic units which are divergent from their syntactic constituency.

Second, the merged forms have a different phonological property from the seven contracted forms. Among the seven contracted forms, *wanna* and *gonna*,

which, schematized as CVCV, consist of two light syllables, have some variants of pronunciation and have the capability of being completely reduced, as repeated in (101). Both have the possibility of containing two schwas, a phonological property of modals and auxiliaries.

- (101) a. I wanna go there alone. [wənə, wɔnə, wʌnə, wənə]
 b. What are you gonna study there? [gɔnə, gənə, gʌnə, gounə, gənə]
 (Suiko (1978:307))

The relevant merged forms cannot be reduced, however. Among them, *plan to*, *ran to*, *pleasant to*, *wont to*, *a pen to*, *given to*, and *began to* consist of two light syllables, being schematized as CVCV. However, none has a variant pronunciation containing two schwas. This is a piece of evidence for the fact that they have not attained modal-like status.

Finally, none of the merged forms exhibits modal-like syntactic behavior. None passes the syntactic tests for auxiliarihood. This is shown below.

(102) VP Ellipsis

- a. They plan to ([plæn tə/*plænə]) go there alone, and I plan to([plæn tu: /*plænə]), too.
 b. They mean to ([mi:n tə/*mi:nə]) go there alone, and I mean to([mi:n tu:/*mi:nə]), too
 c. He is trying to ([traɪŋ tə/?traɪnə]) go there alone, and I'm trying to ([traɪŋ tu:??traɪnə]), too
 d. He began to ([bægən tə??bægənə]) shake, and I began to ([bægən tu: /*bægənə]), too.
 e. These problems remain to ([rimeɪn tə??rimeɪnə]) be solved, and others remain to ([rimeɪn tu:/*rimeɪnə]), too.

(103) Subject-Auxiliary Inversion

- a. *Plan to ([plænə]) you go there alone?
 cf. Do you plan to go there alone?
 b. *Mean to ([mi:nə]) you go there alone?
 cf. Do you mean to go there alone?
 c. *Began to ([bægənə]) you shake?
 cf. Did you begin to go shake?
 d. *Remain to ([rimeɪnə]) these problems be solved?
 cf. Do these problems remain to be solved?

(104) *Do*-Support in Negative Sentences

- a. You {don't plan to/*plan to ([plænə]) not} go there alone.
 b. You {don't mean to/*meana ([mi:nə]) not} go there alone.

- c. He {didn't begin to/*beganna ([bægænə]) not} shake.
 d. These problems {don't remain to/*remain to ([rimeinə]) not} solved.
- (105) VP Preposing
- a. He hesitated to go there alone, but go there alone I plan to ([plæn tu:/*plænə]).
 b. He doesn't know whether I mean to go there, but go there alone I mean to ([mi:n tu:/*mi:nə]).
 c. He didn't begin to write a novel, so write a novel I began to ([bægæn tu:/*bægænə]).
- (106) Quantifier Floating
- a. They plan to ([*plænə]) all go there alone.
 b. They mean to ([*mi:nə]) all go there alone.
 c. They began to ([*bægænə]) all write a novel.
 d. They are trying to ([*trainə]) all write a novel.
 e. These problems remain to ([*rimeinə]) all be solved.

The facts in (102)-(106) indicate that the merged forms in (93)-(100) do not have the modal-like status.

The three sorts of facts presented in this section prove that the merged forms in (93)-(100) must be distinguished from the genuine contracted forms. Put another way, contraction is restricted to the seven forms in (1), all of which have undergone the process of grammaticalization and gained a particular semantic function and meaning with the concomitant loss of their original meanings.

6.3. A Further Issue

If the claim is true that the contracted forms in (1) and the merged forms in (93)-(100) are fundamentally different from each other, a further issue arises. The contracted forms are derived through the formation of a semantic unit because of grammaticalization, the formation of a PW on the basis of a modal-like semantic unit, and the application of at most two deletion rules. The two deletion rules proposed in section 4.2 are repeated here as (107a) and (107b).

- (107) a. $t \rightarrow \phi / [_{PW} \dots n _ \dots]$ (=59a)
 b. $t \rightarrow \phi / [_{PW} \dots _ [V, -stress]]$ (=59b)

The point here is that both rules apply within a PW.

These rules seem to work to derive the merged form in (93)-(101). In particular, (107b) seems to work to delete the word-initial /t/ of *to*. In fact, however, it is not reasonable to say that the rules in (107) apply in (93)-(101). The reason is simply that if the relevant strings of words have not undergone grammaticalization, they cannot form a PW. The infinitive marker and the

immediately preceding word belong to their respective PWs, for PW formation in English respects syntactic constituency if a semantic unit is not formed. There is a syntactic break immediately before the infinitive marker *to*.

Here I follow Hayes (1989:207) in assuming that the PW "is always at least as large as the grammatical word." The infinitive marker *to* is a grammatical word, and the immediately preceding word is also a grammatical word. Thus, there is a kind of phonological juncture between the two. If this assumption is correct, then the rules in (107) do not apply to any of the cases in (93)-(100). Neither of them applies at an edge of a PW.

The rules which apply to the cases in (93)-(100) are formulated as follows.

- (108) a. $t \rightarrow \phi / [_{\text{rW}} \dots n \text{ ____}]$
 b. $t \rightarrow \phi / [_{\text{rW}} \text{ ____ } [V, \text{-stress}]]$

These rules are very similar to the rules in (107), but differ from them in one crucial respect: They are formulated to apply at an edge of a PW. (108a) applies at the right edge of a PW, and (108b) at the left edge of a PW. The phonological fusions presented in (93)-(100) take place across a PW boundary. Recall that the phonological fusions in the contracted forms are characterized as phenomena which take place within a PW.

The contrast between the structural description of the rules in (59) and that of those in (108) clearly shows the essential distinction between *to*-contraction and phonological fusions in section 6.1. The former is a lexical phonological process caused ultimately by the semantic process of grammaticalization. The latter is, on the other hand, a genuine phonological process which is assumed to be caused by speech rate and other extralinguistic factors.

If the rules in (108) are plausible, the next issue arises as to why two kinds of similar deletion rules exist in the grammar of English. Behind the issue is the presupposition that postulation of two similar rules which have the same effect is not good. The presupposition itself is not correct, however. There are some cases in English where two kinds of rules which are similar in having the same phonological effect work at two different levels.

To make this point clear, consider the case of nasal assimilation in English. There are two kinds of nasal assimilation rules in English. One is a lexical nasal assimilation rule which obligatorily assimilates the point of articulation of a nasal segment to the following consonant at a boundary between two morphemes. Typical examples are given in (109).

- (109) a. impossible (<in+possible) compress (<con+press)
 b. imbalance (<in+balance) combine (<con+bine)

- c. immature (<in+mature) commeasure (<con+measure)

The application of this rule is limited to class I affixes like *in-* and *con-*, which are mostly Latinate. It does not apply to class II affixes like *un-* and *non-*, which are mostly Germanic. Observe:

- (110) a. unpleasant/*umpleasant
 b. unbelievable/*umbelievable
 c. unmoved/*ummoved

The other nasal assimilation rule in English is a postlexical nasal assimilation rule which assimilates the point of articulation of a nasal segment to that of the following segment. Typical examples are given in (111).

- (111) a. in bad condition [im]
 b. in Colorado [iŋ]
 c. from Dick [frən]
 d. from Karen [frəŋ]

(Selkirk (1972:185))

This assimilation phenomenon is different in nature to the lexical nasal assimilation phenomenon. The rule of assimilation applies optionally at the postlexical level, while obligatorily in lexical cases like those in (109).

Putting aside the precise formulation of the above-mentioned nasal assimilation rules, I emphasize again that there are two similar rules in English which have the same phonological effect. The existence of two similar rules which have the same effect at different levels is not unnatural.

7. Concluding Remarks

In this paper, we have argued that *to*-contraction, which has been seen as a syntax-phonology interface phenomenon, must be seen as a semantics-phonology interface phenomenon. We have observed that the seven contracted forms in English exhibit several pieces of modal-like behavior. Their modal-like behavior is due to the semantic process of grammaticalization, and the string of a verb and *to* forms a modal-like semantic constituent which is not isomorphic to any syntactic constituent but is rather a phonological constituent, called the Phonological Word.

The grammaticalization account of *to*-contraction enables us to provide its whole picture. It provides a unified account of facts which have been remained problematic in previous studies on *to*-contraction and enables us to see a clear-cut picture of the interactions among syntax, semantics, and phonology in the formation of contracted forms in English.

NOTES

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¹ Postal and Pullum (1978:12-13) argue that *used* in the relevant meaning is a raising verb, providing two pieces of evidence. First, the object of the infinitival complement of *used* can be the subject of a passive sentence, maintaining the truth-functional equivalence. This is shown in (i).

- (i) a. Some of those guys used to audit my course.
- b. My course used to be audited by some of those guys.

(Postal and Pullum (1978:12))

A second piece of evidence for the raising analysis of *used* is concerned with the nature of the subject NP. As shown in (ii) and (iii), dummy NPs and NPs which are separated from idiom-chunks can be the subject of *used*.

- (ii) a. It used to rain every time we went to the beach.
- b. It used to be me that they didn't like.
- c. There used to be an old castle round here someplace.

(Postal and Pullum (1978:13))

- (iii)a. Tabs used to be kept on him everywhere he went.
- b. Very little headway used to be made during his absence.
- c. Not much heed used to taken of his absurd posturing.

(Postal and Pullum (1978:13))

By contrast, the verb *want*, which is an Equi verb, does not exhibit the same pattern of syntactic behavior as *used*, as in (iv).

- (iv) a. Some of the guys want to audit my course.
- b. *My course wants to be audited by some of those guys.
- c. *It wanted to rain every time we went to the beach.
- d. *It wanted to be me that they didn't like.
- e. *There wanted to be a old castle round here someplace.
- f. *Tabs wanted to be kept on him everywhere he went.
- g. *Very little headway wanted to be made during his absence.
- h. *Not much heed wanted to be taken of his absrud posturing.

(Postal and Pullum (1978:12-13))

The above syntactic contrasts clearly show that *used*, which forms *usta* with *to*, is not at all an

Equi verb, as Lightfoot (1976) assumes. The syntactic representation in (4a) is based on the above-mentioned arguments.

² Wierzbicka (1988:31) postulates the following semantic representation for *want*.

(i) He wanted to go. \Rightarrow

he thought this: I want this: I will go

The point which is relevant to the interest here is that the modal *will* is contained in the semantic representation of *want*. If the representation in (i) is plausible, the auxiliatation of *want* is a natural process of semantic change. The existence of the contracted form *wanna* is not at all an accidental result.

³ Two other facts concerning the relation between *to*-contraction and *do*-support are worth noting. The first fact to be noted is concerned with the cooccurrence of *wanna* with *not*. Ronald Craig (p.c.) has pointed out to me that *wanna* can cooccur with the negative particle *not* under a limited pragmatic condition. This is shown by example (i), which functions as an imperative sentence implying a warning, as paraphrased in (ii).

(i) You wanna not do that any more?

(ii) Stop doing that and don't do it again.

If *wanna* has no properties of modals, sentences like (i) is unacceptable regardless of pragmatic conditions. The acceptability of (i) shows that the auxiliatation of *wanna* is in progress and has not been completed.

The other fact to be noted is concerned with the negative forms of the contracted forms in tag questions. Of the five contracted forms not headed by *be*, the four other than *oughta* require *do*-support also in tag questions, for they cannot be accompanied by *-n't*. This is shown in (iii).

(iii) a. You wanna go there, {don't/*wanna'n't} you.

b. You usta go there alone, {*don't/didn't/*ustan't} you?

c. You gotta go there alone, {don't/*gottan't} you?

d. You hafta go there alone, {don't/*didn't/*haftan't} you?

e. You oughta go there, {*don't/*oughtan't/oughtn't} you?

The reason for the nonoccurrence of forms like **wanna'n't* is due to a cooccurrence restriction on the contracted form *-n't*. Zwicky and Pullum (1983) argue that *-n't* should be treated as an inflectional affix. In fact, it cannot attach to a word containing a simple clitic like *-d*, the contracted form of *would*, as in (iv).

(iv) *I'dn't be doing this unless I had to. (Zwicky and Pullum (1983:507))

Given Zwicky and Pullum's (1983) proposal, the nonoccurrence of forms like **wanna'n't* is explained in either of the following two possible ways. One is that the final syllables of the contracted forms in (1), which originate from *to*, function as simple clitics. The inflectional ending *-n't* cannot attach to any of the contracted forms, for the concatenation of a simple clitic with an inflectional suffix is prohibited, as example (iv) shows. The other possibility is that the final

syllables of the contracted forms function as inflectional suffixes. In this case, *-n't* cannot attach to any of the contracted forms, either. Recall that an inflectional suffix cannot cooccur with another inflectional suffix.

This issue is left for future research.

⁴ Pullum (1997) argues that the contracted forms in English are morphologically compounds and constitute a class, called the "therapy verbs," which take a bare infinitival clause as the complement. In fact, he argues that the therapy verbs do not constitute a class sharing the feature [+AUX].

Pullum's (1997) arguments, although interesting, do not seem to be strong enough to prove that the contracted forms are not modal-like elements. He does not provide any piece of strong empirical evidence for the claim that the contracted forms are not modal-like elements.

⁵ The necessity for elaborating syntactic environments in the examples in (37) shows that pragmatic factors also work in order for them to be acceptable. This does not imply, however, that pragmatic factors are also at work in order for the contracted forms to be acceptable.

⁶ An additional example of the cooccurrence of *usta* with a modal is given below:

(i) He would *usta* buy a new car every two or three years.

Another interesting fact is that *usta* can cooccur with *must have* in the following example.

(ii) You *musta usta've* gone by where I worked every day! Funny we never met ...
=You must have used to have gone by where I worked every day. ...

The modal *must* in (42d) has only the epistemic interpretation. An additional example of the occurrence of *hafta* with *should* is given in (iii).

(iii) People who do things like that should *hafta* spend the rest of their lives in prison!

⁷ It is hardly possible to say that the contracted forms constitute a category, either syntactic or semantic. They do not exhibit uniform patterns of syntactic behavior, although they are similar in form and meaning to each other. At first glance, this state of affairs does not seem to be natural, for elements which are similar in form and meaning to each other are expected to exhibit a uniform pattern of behavior.

Culicover (1998) shows that categories like preposition and adjectives in English, which are assumed to constitute a syntactic category, do not exhibit uniform patterns of syntactic behavior. They are divided into a lot of minor categories.

If Culicover's argument is correct, then the non-uniform patterns of behavior of the contracted forms are not unnatural. It is possible to say that the contracted forms, although similar in form and meaning to each other, do not constitute a uniform category but contain at least three minor categories.

⁸ The fact that the phonetic forms [jəstə] and [səpəstə] are not completely unacceptable is due a peculiar phonological characteristic of the consonant cluster /st/. It is well-known that the cluster /st/ behaves like a single consonant in some phonological phenomena.

For example, take the behavior of /-st-/ in Open Syllable Lengthening (OSL), a historical phonological change in the Middle English period. In OSL, a short vowel is lengthened in the environment roughly formulated in (i).

(i) ___CV(C)]

The point is that a short vowel is lengthened when it is obligatorily followed by one consonant and one short vowel.

The consonant cluster /st/ constitutes an exception to the environment in (i). It is expected to block the lengthening of the immediately preceding vowel, because it is not a single consonant. In fact, however, a short vowel is lengthened immediately before /st/ in lexical items like those in (ii).

(ii) beste 'beast' chasten 'chaste' host 'host' post 'post' roste 'roast' wasten 'waste'

If this peculiar property of /st/ still plays a minimal role in Present-Day English, the consonant cluster /st/ in *usta* and *suposta* has the possibility of behaving both as a cluster and as a single consonant. In other words, /st/ contributes to forming a strong cluster and at the same time to forming a weak cluster.

For further details of the peculiarities of the consonant cluster /st/, see Nakao (1985).

⁹ For the semantic equivalence between the preposition *to* and the infinitive *to*, see Abe (1986) and the references cited there.

¹⁰ Jackendoff (1990) refers to the possibility of the existence of direct correspondence between semantics and phonology and does not postulate any specific semantics-phonology correspondence rules. His focus is mainly on syntax-semantics correspondences.

¹¹ Krug (2000) also refers to the grammaticalization of *wanna* and the other contracted forms from a diachronic statistical viewpoint. He does not make full use of their syntactic patterning in Present-Day English to demonstrate that they are modal-like elements.

¹² Rules (59a) and (59b) are originally formulated as follows:

(i) t, d → φ/n ___## (Suiko (1978:310))

(ii) t → φ/n (##)___ [V, -stress] (Suiko (1978:307))

¹³ Goldsmith (1985:136) observes that the second conjunct combined by the *and* with the "nonetheless" sense must be a bare infinitive, as in (i).

(i) The IMF wants to invoke austerity measures in Chile and (?*to) ride out the waves (that may ensue).

Ronald Craig (p.c.) has pointed out to me, however, that the second conjunct in sentences like (i) must be headed by *to*. It is likely that there are two types of grammars with respect to the occurrence of *to* in the second conjunct combined by the *and* with the "nonetheless" sense.

¹⁴ The blocking of *to*-contraction in coordinate structures can be accounted for in a much more general perspective. The constraint in (83), which is specific to *to*-contraction, can be restated in a more general manner. However, the general restatement is left for future research.

¹⁵ Ronald Craig (p.c.) has observed that pronunciations in examples like those in (93)-(100)

may have originated from the imitation of the speech of Italian (and other Romance-language-speaking) immigrants.

¹⁶ The most serious problem with Suiko's (1978) analysis is that it completely lacks a semantic point of view.

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