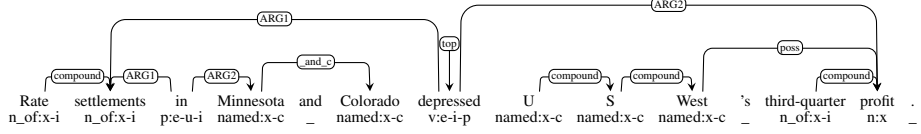
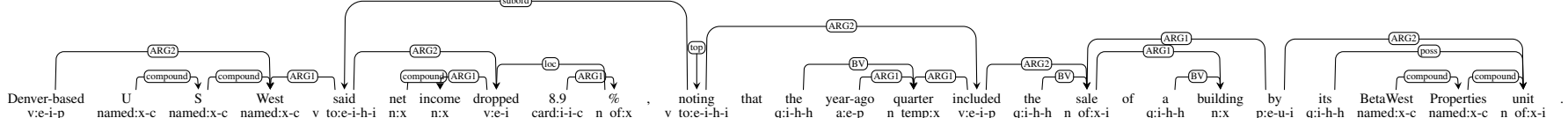


Document 1651

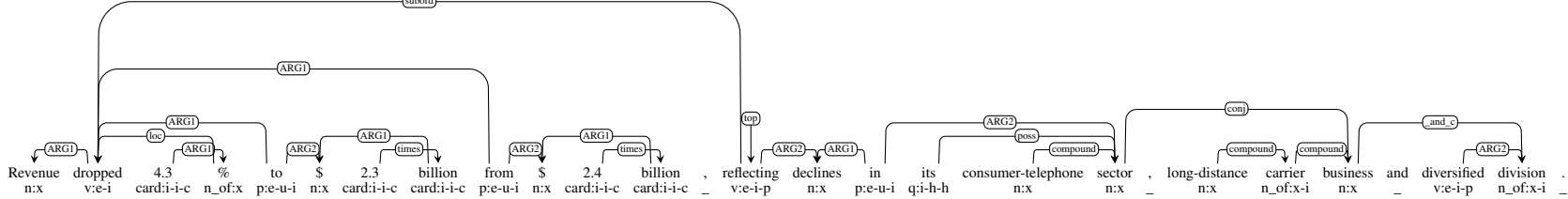
[21651002]



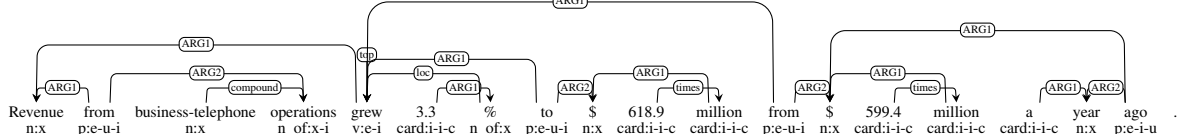
[21651003]



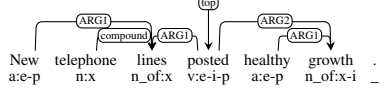
[21651004]



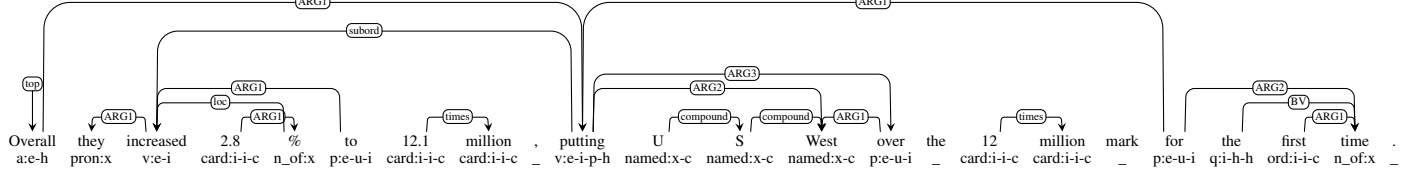
[21651005]



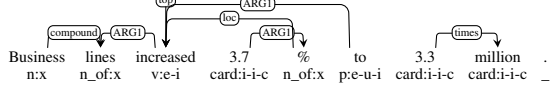
[21651006]



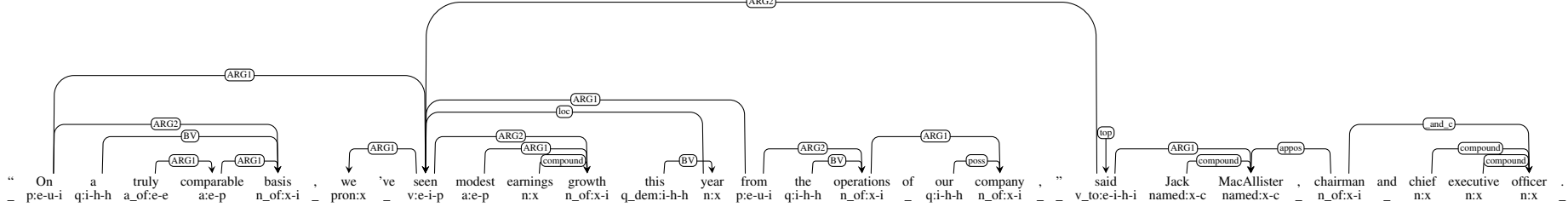
[21651007]



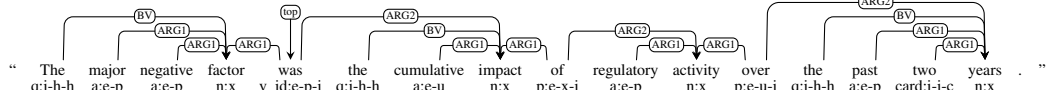
[21651008]



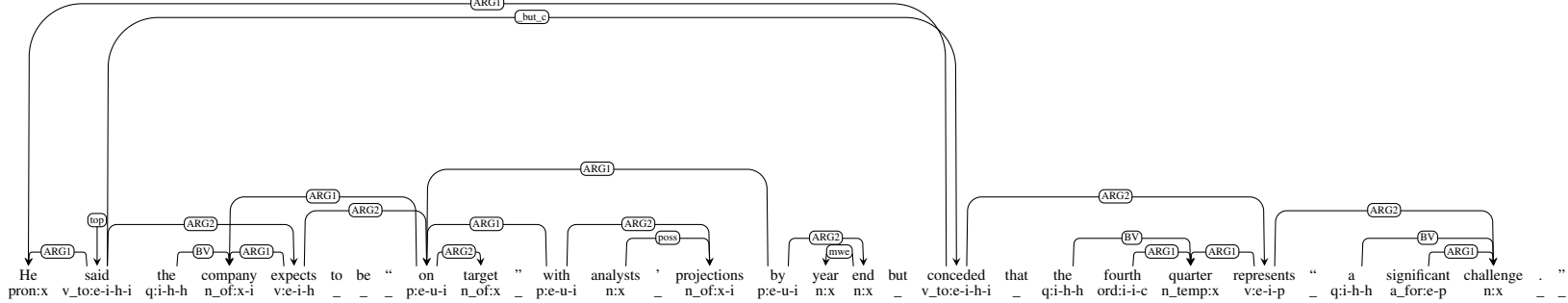
[21651009]



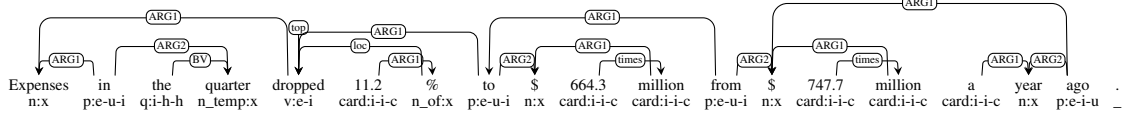
[21651010]



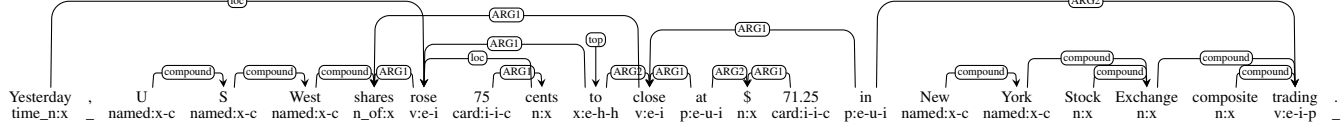
[21651011]



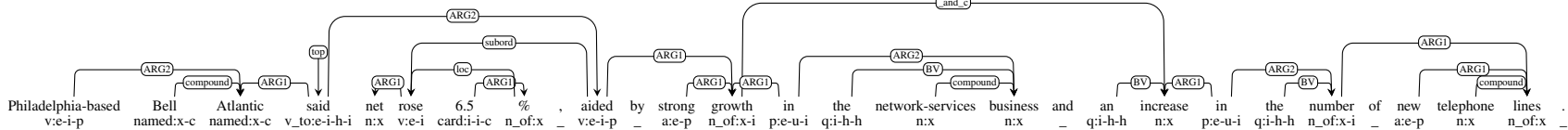
[21651012]



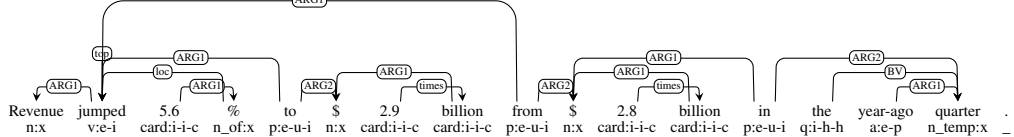
[21651013]



[21651014]



[21651015]



[21651016]

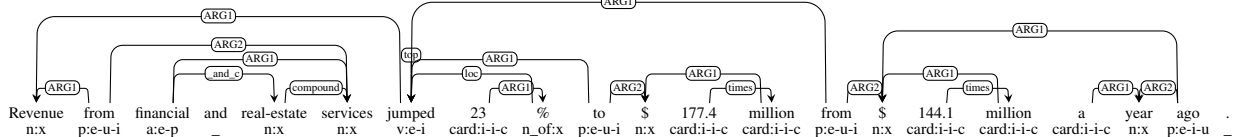


Figure 1 illustrates a dependency parse tree for the sentence: "Network-access revenue from pre-u-i long-distance n-x telephone n-x companies n_o_f_x-i increased v-e-i 6.4 i_n_o_f_x n_o_f_x to pre-u-i \$ 618.6 card-i-e-c million card-i-e-c .". The tree structure shows how words are grouped into phrases and how dependencies are established between them. For example, "Network-access revenue" is a phrase, and "from pre-u-i" is another. The tree also shows dependencies between phrases, such as "from pre-u-i" depending on "Network-access revenue".

Figure 1: A parse tree for the sentence “Bell added 148,000 new telephone lines in the quarter for a total of 16.9 million.” The root node is *ARG1*, which dominates the entire sentence. The tree structure is as follows:

- ARG1* (root) branches into *compound* and *added*.
- compound* branches into *ARG1* (dominating “Bell”) and *ARG2* (dominating “Atlantic”).
- added* branches into *148,000*, *v_toe-i-p*, and *ARG2* (dominating “new”).
- 148,000* branches into *card-i-c* and *a-p*.
- v_toe-i-p* branches into *n_x* and *n_of-x*.
- new* branches into *telephone* and *lines*.
- telephone* branches into *n_x* and *n_of-x*.
- lines* branches into *in* and *the*.
- in* branches into *p_e-u-i* and *q_i-h-h*.
- the* branches into *q_i-h-h* and *n_temp-x*.
- quarter* branches into *n_temp-x* and *for*.
- for* branches into *p_e-u-i* and *q_i-h-h*.
- a* branches into *q_i-h-h* and *n_of-x-i*.
- total* branches into *n_of-x-i* and *of*.
- of* branches into *card-i-c* and *card-i-c*.
- 16.9* branches into *times* and *million*.
- million* branches into *card-i-c* and *i-c*.

The figure displays two parse trees for the sentences "The company said earnings were slightly reduced by the sale of 4.1 million shares of treasury stock" (left) and "The company newly formed Employee Stock Ownership Plans" (right). The trees are annotated with dependency arcs and grammatical relations. The left tree shows a main clause with a subject "The company", a verb "said", and a complement clause "earnings were slightly reduced by the sale of 4.1 million shares of treasury stock". The right tree shows a main clause with a subject "The company", a verb "newly formed", and a list of objects "Employee Stock Ownership Plans". The arcs are labeled with grammatical relations such as *ARG1*, *ARG2*, *ARG3*, *ARG4*, *ARG5*, *ARG6*, *ARG7*, *ARG8*, *ARG9*, *ARG10*, *ARG11*, *ARG12*, *ARG13*, *ARG14*, *ARG15*, *ARG16*, *ARG17*, *ARG18*, *ARG19*, *ARG20*, *ARG21*, *ARG22*, *ARG23*, *ARG24*, *ARG25*, *ARG26*, *ARG27*, *ARG28*, *ARG29*, *ARG30*, *ARG31*, *ARG32*, *ARG33*, *ARG34*, *ARG35*, *ARG36*, *ARG37*, *ARG38*, *ARG39*, *ARG40*, *ARG41*, *ARG42*, *ARG43*, *ARG44*, *ARG45*, *ARG46*, *ARG47*, *ARG48*, *ARG49*, *ARG50*, *ARG51*, *ARG52*, *ARG53*, *ARG54*, *ARG55*, *ARG56*, *ARG57*, *ARG58*, *ARG59*, *ARG60*, *ARG61*, *ARG62*, *ARG63*, *ARG64*, *ARG65*, *ARG66*, *ARG67*, *ARG68*, *ARG69*, *ARG70*, *ARG71*, *ARG72*, *ARG73*, *ARG74*, *ARG75*, *ARG76*, *ARG77*, *ARG78*, *ARG79*, *ARG80*, *ARG81*, *ARG82*, *ARG83*, *ARG84*, *ARG85*, *ARG86*, *ARG87*, *ARG88*, *ARG89*, *ARG90*, *ARG91*, *ARG92*, *ARG93*, *ARG94*, *ARG95*, *ARG96*, *ARG97*, *ARG98*, *ARG99*, *ARG100*, *ARG101*, *ARG102*, *ARG103*, *ARG104*, *ARG105*, *ARG106*, *ARG107*, *ARG108*, *ARG109*, *ARG110*, *ARG111*, *ARG112*, *ARG113*, *ARG114*, *ARG115*, *ARG116*, *ARG117*, *ARG118*, *ARG119*, *ARG120*, *ARG121*, *ARG122*, *ARG123*, *ARG124*, *ARG125*, *ARG126*, *ARG127*, *ARG128*, *ARG129*, *ARG130*, *ARG131*, *ARG132*, *ARG133*, *ARG134*, *ARG135*, *ARG136*, *ARG137*, *ARG138*, *ARG139*, *ARG140*, *ARG141*, *ARG142*, *ARG143*, *ARG144*, *ARG145*, *ARG146*, *ARG147*, *ARG148*, *ARG149*, *ARG150*, *ARG151*, *ARG152*, *ARG153*, *ARG154*, *ARG155*, *ARG156*, *ARG157*, *ARG158*, *ARG159*, *ARG160*, *ARG161*, *ARG162*, *ARG163*, *ARG164*, *ARG165*, *ARG166*, *ARG167*, *ARG168*, *ARG169*, *ARG170*, *ARG171*, *ARG172*, *ARG173*, *ARG174*, *ARG175*, *ARG176*, *ARG177*, *ARG178*, *ARG179*, *ARG180*, *ARG181*, *ARG182*, *ARG183*, *ARG184*, *ARG185*, *ARG186*, *ARG187*, *ARG188*, *ARG189*, *ARG190*, *ARG191*, *ARG192*, *ARG193*, *ARG194*, *ARG195*, *ARG196*, *ARG197*, *ARG198*, *ARG199*, *ARG200*, *ARG201*, *ARG202*, *ARG203*, *ARG204*, *ARG205*, *ARG206*, *ARG207*, *ARG208*, *ARG209*, *ARG210*, *ARG211*, *ARG212*, *ARG213*, *ARG214*, *ARG215*, *ARG216*, *ARG217*, *ARG218*, *ARG219*, *ARG220*, *ARG221*, *ARG222*, *ARG223*, *ARG224*, *ARG225*, *ARG226*, *ARG227*, *ARG228*, *ARG229*, *ARG230*, *ARG231*, *ARG232*, *ARG233*, *ARG234*, *ARG235*, *ARG236*, *ARG237*, *ARG238*, *ARG239*, *ARG240*, *ARG241*, *ARG242*, *ARG243*, *ARG244*, *ARG245*, *ARG246*, *ARG247*, *ARG248*, *ARG249*, *ARG250*, *ARG251*, *ARG252*, *ARG253*, *ARG254*, *ARG255*, *ARG256*, *ARG257*, *ARG258*, *ARG259*, *ARG260*, *ARG261*, *ARG262*, *ARG263*, *ARG264*, *ARG265*, *ARG266*, *ARG267*, *ARG268*, *ARG269*, *ARG270*, *ARG271*, *ARG272*, *ARG273*, *ARG274*, *ARG275*, *ARG276*, *ARG277*, *ARG278*, *ARG279*, *ARG280*, *ARG281*, *ARG282*, *ARG283*, *ARG284*, *ARG285*, *ARG286*, *ARG287*, *ARG288*, *ARG289*, *ARG290*, *ARG291*, *ARG292*, *ARG293*, *ARG294*, *ARG295*, *ARG296*, *ARG297*, *ARG298*, *ARG299*, *ARG300*, *ARG301*, *ARG302*, *ARG303*, *ARG304*, *ARG305*, *ARG306*, *ARG307*, *ARG308*, *ARG309*, *ARG310*, *ARG311*, *ARG312*, *ARG313*, *ARG314*, *ARG315*, *ARG316*, *ARG317*, *ARG318*, *ARG319*, *ARG320*, *ARG321*, *ARG322*, *ARG323*, *ARG324*, *ARG325*, *ARG326*, *ARG327*, *ARG328*, *ARG329*, *ARG330*, *ARG331*, *ARG332*, *ARG333*, *ARG334*, *ARG335*, *ARG336*, *ARG337*, *ARG338*, *ARG339*, *ARG340*, *ARG341*, *ARG342*, *ARG343*, *ARG344*, *ARG345*, *ARG346*, *ARG347*, *ARG348*, *ARG349*, *ARG350*, *ARG351*, *ARG352*, *ARG353*, *ARG354*, *ARG355*, *ARG356*, *ARG357*, *ARG358*, *ARG359*, *ARG360*, *ARG361*, *ARG362*, *ARG363*, *ARG364*, *ARG365*, *ARG366*, *ARG367*, *ARG368*, *ARG369*, *ARG370*, *ARG371*, *ARG372*, *ARG373*, *ARG374*, *ARG375*, *ARG376*, *ARG377*, *ARG378*, *ARG379*, *ARG380*, *ARG381*, *ARG382*, *ARG383*, *ARG384*, *ARG385*, *ARG386*, *ARG387*, *ARG388*, *ARG389*, *ARG390*, *ARG391*, *ARG392*, *ARG393*, *ARG394*, *ARG395*, *ARG396*, *ARG397*, *ARG398*, *ARG399*, *ARG400*, *ARG401*, *ARG402*, *ARG403*, *ARG404*, *ARG405*, *ARG406</*

Figure 1: A parse tree for the sentence "In composite trading on the Big Board Bell Atlantic closed at \$100.625 up \$1.50 a share". The tree shows the hierarchical structure of the sentence, with the root node S branching into NP (In composite trading on the Big Board) and VP (Bell Atlantic closed at \$100.625 up \$1.50 a share). The NP branches into In, composite, trading, on, the, Big, and Board. The VP branches into Bell, Atlantic, closed, at, \$100.625, up, \$1.50, a, and share. The tree also includes various grammatical relations such as ARG1, ARG2, and COMP.

State_n of x-i and local taxes increased_v i-e to pre-u i S 131.3 million card-i-i-c from pre-u i S 99.1 million card-i-i-c a year ago pre-u i

Figure 1 illustrates a dependency parse tree for the sentence: "Nyx named x-c v_toe-i-h-i expenses n_x said n_x rose v-e-i card-i-i-c 4.5 n_of/x % ARGT1 to s pxe-u-i nx card-i-i-c 2.73 billion from pre-u-i s card-i-i-c card-i-i-c 2.61 billion q3-h-h n_x a 119 million increase . n_x". The tree structure shows the hierarchical organization of the sentence, with the root node S branching into the main clause and the relative clause. The main clause is headed by the verb "said", and the relative clause is headed by the verb "named". The tree also shows the dependency arcs between the words, such as the arc from "said" to "to" (ARGT1) and the arc from "named" to "Nyx" (SUBJ).

[illegible][illegible]

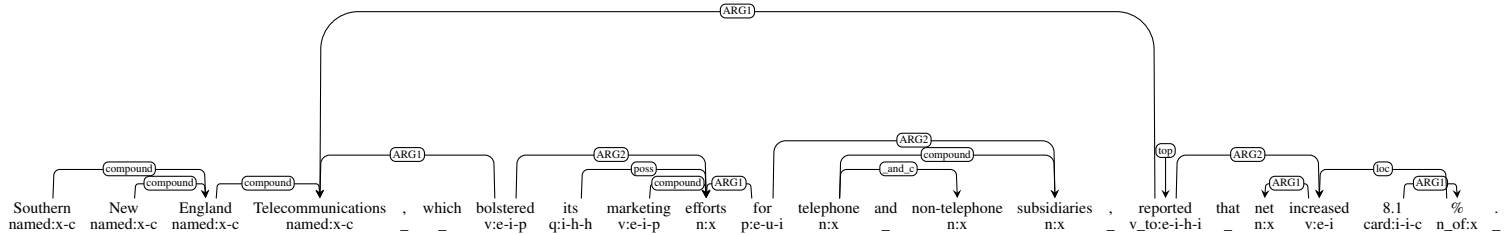
Figure 10: A syntax tree for the sentence "This deviation from our past growth patterns is caused largely by lower earnings at New York Telephone." The tree shows the hierarchical structure of the sentence, with the root node S branching into NP (This) and VP (deviation from our past growth patterns is caused largely by lower earnings at New York Telephone). The VP branches into V (is) and PP (caused largely by lower earnings at New York Telephone). The PP branches into P (by) and NP (lower earnings at New York Telephone). The NP branches into lower, earnings, at, New, York, and Telephone. The tree is annotated with various grammatical features and relations, such as ARG1, ARG2, and ARG3, and is labeled with the sentence number 10.

The diagram illustrates the hierarchical structure of the sentence "The qi-h-h three-month-old strike n.x at pre-a-i Nyxex named-x-x seriously a-c-e hurt v-i-z-i-p the installation of new n.x of_x-i telephone n.x n.x of_x-o-f lines n.x n.x of_x-o-f in p-z-u-i the quarter q-i-h-h n_x of_x-i .". The root node is ARG1, which branches into BV and ARG1. The BV node branches into three-month-old and strike. The three-month-old node branches into qi-h-h and three-month-old. The strike node branches into n.x and at. The at node branches into pre-a-i and Nyxex. The Nyxex node branches into named-x-x and seriously. The seriously node branches into a-c-e and hurt. The hurt node branches into v-i-z-i-p and the. The the node branches into installation and of. The installation node branches into n.x and of_x-i. The of node branches into new and n.x. The new node branches into n.x and of_x-o-f. The of_x-o-f node branches into telephone and lines. The telephone node branches into n.x and n.x. The lines node branches into n.x and of_x-o-f. The of_x-o-f node branches into in and p-z-u-i. The in node branches into the and quarter. The quarter node branches into q-i-h-h and n_x. The n_x node branches into of_x-i and ..

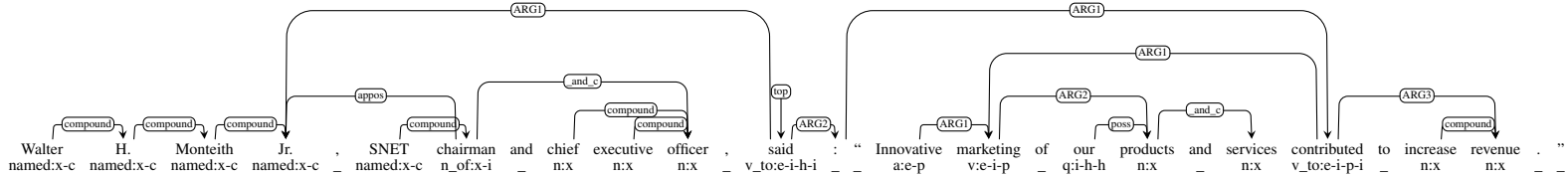
The diagram illustrates a dependency graph for a code snippet. It features several nodes labeled "ARCTI" and "BV".
- A top-level "ARCTI" node has arrows pointing down to "named-x-c", "v_toe-i-h", "access_lines_n_of_x", "pe-u-i", "service-nx", "at-pe-u-i", "the-quarter-end", "of-q3-h-h", "n_of-x-i", "temp", "were-off", "18,000-card-i-c", "from-the", "previous-quarter", "which-reported-an-increase", "q3-h-h", "increase-nx", "pe-x-i", "160,000-new-access-lines", "card-i-c", "ae-p", "nx", and "n_of_x".
- Below "named-x-c" is another "ARCTI" node.
- Below "v_toe-i-h" is a "BV" node.
- Below "access_lines_n_of_x" is an "ARCTI" node.
- Below "pe-u-i" is an "ARCTI" node.
- Below "service-nx" is a "BV" node.
- Below "at-pe-u-i" is an "ARCTI" node.
- Below "the-quarter-end" is a "BV" node.
- Below "of-q3-h-h" is an "ARCTI" node.
- Below "n_of-x-i" is a "BV" node.
- Below "temp" is an "ARCTI" node.
- Below "were-off" is an "ARCTI" node.
- Below "18,000-card-i-c" is a "BV" node.
- Below "from-the" is an "ARCTI" node.
- Below "previous-quarter" is a "BV" node.
- Below "which-reported-an-increase" is an "ARCTI" node.
- Below "q3-h-h" is a "BV" node.
- Below "increase-nx" is an "ARCTI" node.
- Below "pe-x-i" is a "BV" node.
- Below "160,000-new-access-lines" is an "ARCTI" node.
- Below "card-i-c" is a "BV" node.
- Below "ae-p" is an "ARCTI" node.
- Below "nx" is a "BV" node.
- Below "n_of_x" is an "ARCTI" node.

[illegible]

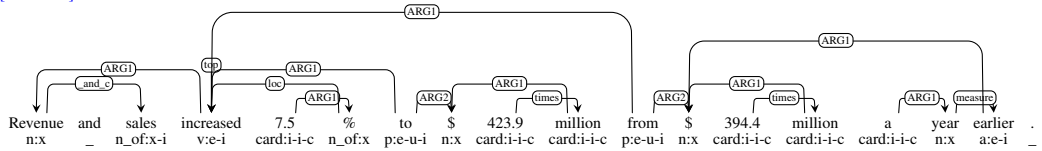
Figure 1: A parse tree for the sentence "The big board composite trading yesterday, Nynex common closed at \$ 81.125 up 1.625." The root node is ARG1, which branches into IN, ARG25, and ARGH. ARG25 branches into compound, compound, and compound. ARGH branches into compound, ARG1, and ARG1. The sentence is segmented into tokens: "In", "p-e-u-i", "named-x-c", "Big", "Board", "named-x-c", "composite", "n-x", "trading", "time_n-x", "yesterday", "Nynex", "named-x-c", "common", "n-x", "closed", "v-e-i", "at", "p-e-u-i", "n-x", "\$", "81.125", "cardi-i-c", "up", "p-e-u-i", "n-x", "1.625", "cardi-i-c".



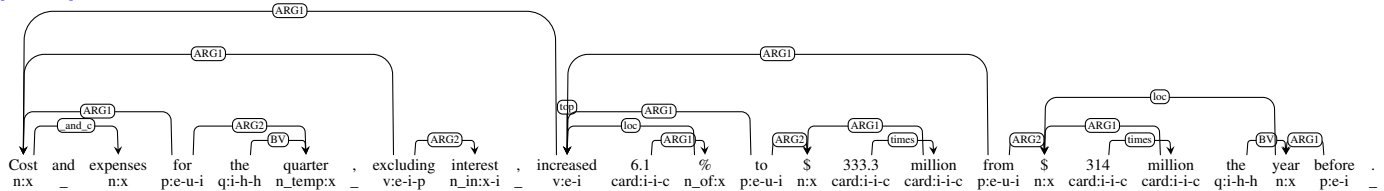
[21651033]



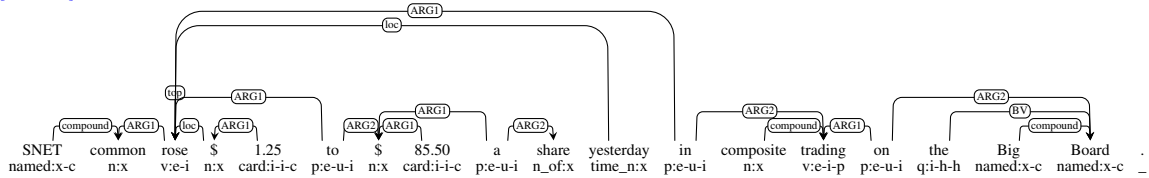
[21651034]



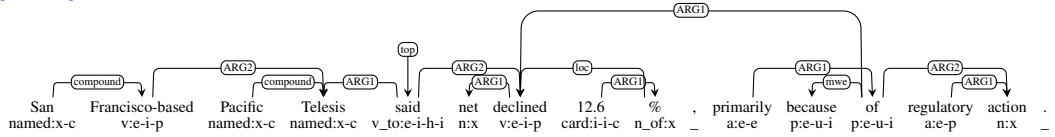
[21651036]



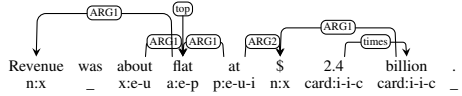
[21651037]



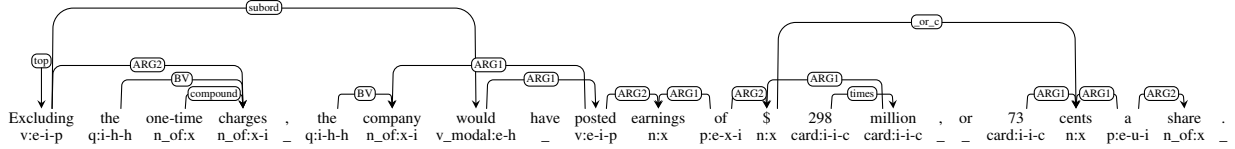
[21651038]



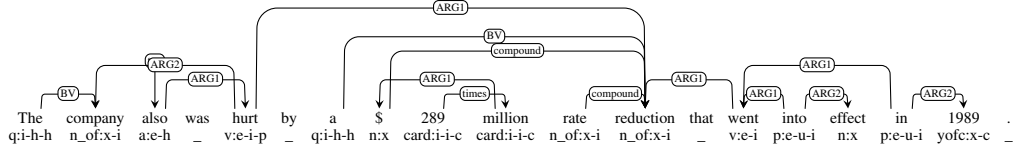
[21651039]



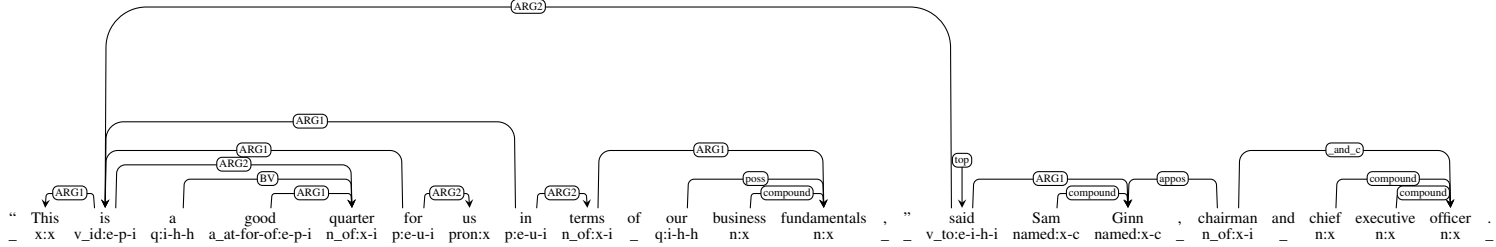
[21651041]



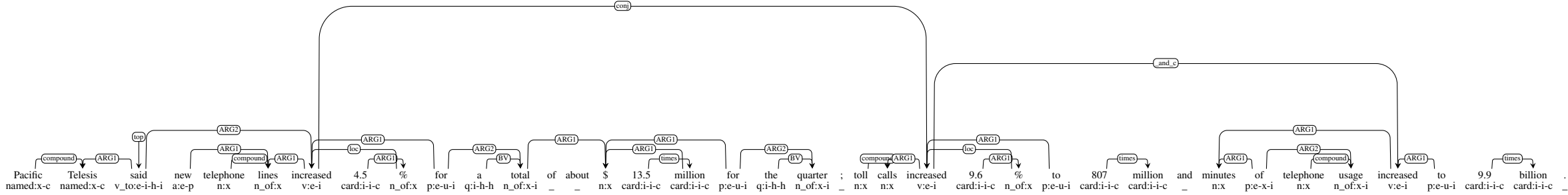
[21651042]



[21651043]



[21651044]



[21651045]

