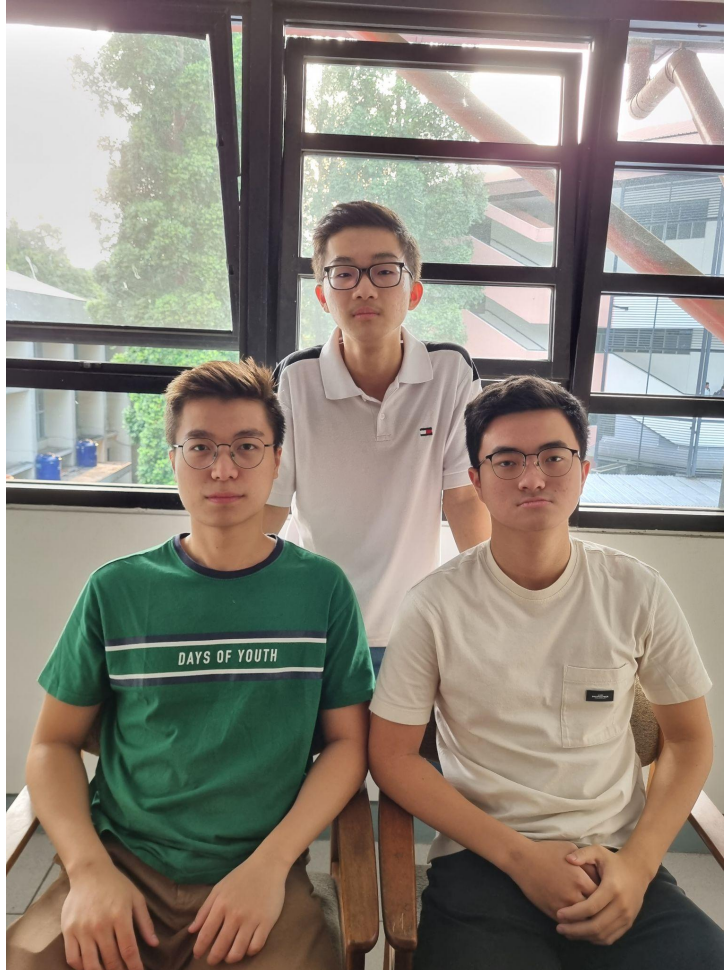


LAPORAN TUGAS BESAR

IF2124 TEORI BAHASA FORMAL DAN OTOMATA

Kelompok gilaNubes



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BAB I

TEORI DASAR

1.1 Hypertext Markup Language (HTML)

HTML (Hypertext Markup Language) adalah bahasa markup standar untuk membuat dan menyusun halaman dan aplikasi web. HTML menggunakan sistem tagging untuk mendefinisikan elemen dalam dokumen, seperti judul, paragraf, tautan, dan banyak lagi. Struktur HTML biasanya mewakili model pohon, di mana setiap elemen bisa memiliki elemen anak dan/atau saudara kandung.

Berikut adalah tag-tag html yang akan di cek dengan PDA kami :

1. `<html>`
`<html>` menandai awal dan akhir dari dokumen HTML, berfungsi sebagai wadah utama yang mengandung semua elemen lain. `<html>` wajib ada di dalam dokumen dan dokumen harus diawali dengan tag `<html>`
2. `<head>`
`<head>` adalah tag yang berada di dalam tag `<html>` . Umumnya tag `<head>` berisi metadata, seperti judul halaman di `<title>`, tautan ke file CSS dengan `<link>`, dan skrip JavaScript di `<script>`. `<head>` juga harus ada dalam sebuah dokumen HTML.
3. `<title>`
`<title>` adalah tag yang berisi judul halaman. tag `<title>` hanya boleh berada di dalam head
4. `<link>`
Sebagai elemen yang menghubungkan dokumen dengan file CSS eksternal, `<link>` harus memiliki atribut rel dan merupakan void element, yang artinya tidak memerlukan tag penutup.
5. `<script>`
`<script>` adalah tag yang berisi tautan untuk ke script JavaScript
6. `<body>`

<body> adalah tag yang berada di dalam tag <html> juga. Bagian body menyimpan konten utama yang terlihat oleh pengguna.

7. <h1>, <h2>, <h3>, <h4>, <h5>, <h6>

Tag ini digunakan untuk mendefinisikan judul dan subjudul, dengan <h1> sebagai yang paling penting hingga <h6> yang paling kurang penting secara hierarkis.

8. <p>

<p> adalah tag yang digunakan untuk menyimpan paragraf

9.

 adalah tag untuk memasukkan jeda baris.

10. , , , <abbr>, <small>

, , , <abbr>, dan <small> memberikan penekanan atau format khusus pada teks. (HTML Formatting Element)

11. <hr>

<hr> adalah tag untuk menambahkan garis horizontal sebagai pemisah konten.

12. <div>

<div> adalah tag yang sering digunakan untuk mengelompokkan konten atau bagian layout

13. <a>

<a> adalah tag yang digunakan untuk hyperlink (link). Atribut dari <a> adalah href.

14.

 adalah tag yang digunakan untuk menampilkan gambar. Di dalam tugas besar ini atribut dari tag img adalah src dan alt. Setiap img wajib memiliki src sebagai atributnya.

15. <button>

<button> adalah tag yang digunakan untuk membuat tombol. Atribut dari button adalah type. Pada tugas besar ini dibatasi atribut type hanya submit, reset dan button.

16. <form>, <input>

Tag <form> digunakan untuk membuat formulir interaktif, dengan atribut action dan method (terbatas pada GET dan POST). Tag <input>

digunakan untuk berbagai jenis inputan pengguna, termasuk teks, password, email, dan lainnya.

17. `<table>`

`<table>` digunakan untuk membuat struktur tabel di HTML.

18. `<tr>`, `<td>` dan `<th>`

tag `<tr>`, `<td>` dan `<th>` harus berada di dalam tag `table`. tag `tr` menandakan baris, `td` untuk sel data, dan `th` untuk sel header.

Setiap tag ini memiliki peran spesifik dalam membentuk struktur dan tampilan halaman web, yang memungkinkan pembuat konten dan pengembang web merancang dan menyajikan informasi secara efektif dan menarik di internet.

Nested elements, atau elemen bersarang, adalah konsep di mana satu elemen HTML diletakkan di dalam elemen lain. Ini menciptakan struktur hierarkis dalam dokumen, sangat penting untuk organisasi konten halaman web. Contoh umum termasuk paragraf yang berada dalam `div` atau link di dalam sebuah list item. Elemen bersarang ini memudahkan pembuat konten dan pengembang web untuk menata dan mengelola konten secara efisien, memungkinkan implementasi desain yang kompleks dan interaktivitas dengan CSS dan JavaScript.

Void elements, atau elemen kosong, adalah elemen HTML yang tidak memerlukan tag penutup dan tidak memiliki konten. Mereka biasanya digunakan untuk menyisipkan sesuatu ke dalam dokumen pada posisi elemen tersebut. Contoh populer dari void elements termasuk `
` untuk jeda baris, `` untuk gambar, dan `<input>` untuk bidang input di formulir. Karena sifatnya yang self-contained, elemen kosong ini memainkan peran penting dalam HTML, terutama untuk menyertakan sumber daya eksternal atau membuat struktur halaman yang lebih bersih.

1.2 Pushdown Automata

Pushdown automata adalah sebuah mesin bahasa yang ekuivalen dengan *context free grammar*. PDA memanfaatkan stack sebagai tempat untuk menyimpan komponen-komponennya. Stack (tumpukan) adalah salah satu tipe penyimpanan data yang memiliki cara tersendiri, penambahan dan pengambilan

elemen dalam stack hanya dapat melalui elemen teratas dari stack tersebut, prinsip ini disebut dengan LIFO (Last In First Out).

PDA didefinisikan dengan Q sebagai kumpulan state, Σ sebagai kumpulan simbol input, Γ sebagai kumpulan dari simbol stack, δ sebagai simbol transisi pada fungsi, q_0 ($q_0 \in Q$) sebagai simbol *start state*, Z_0 ($Z_0 \in \Gamma$) sebagai simbol *start stack*, dan F sebagai kumpulan *final state* ($F \in Q$). Fungsi transisi umumnya terdiri dari 3 elemen di awal yaitu sebuah state dari Q , sebuah simbol input dari Σ , dan sebuah simbol stack dari Γ dan 2 elemen di akhir berupa sebuah state dari Q dan simbol stack dari Γ . Contohnya adalah $\delta(q, a, Z_0) = \{(q, XZ_0)\}$ yang berarti state sekarang adalah q , input yang diinginkan adalah a , pop Z_0 dari top stack, state berpindah dari q ke q , dan push XZ_0 ke dalam stack dengan X sebagai top.

1.3 Pengaplikasian PDA pada Sintaksis HTML

HTML, sebagai bahasa markup, memiliki struktur yang mirip dengan bahasa bebas konteks dan dapat dianalisis dengan menggunakan prinsip-prinsip PDA. Elemen HTML sering bersarang, di mana satu tag berada di dalam tag lain, menciptakan struktur hirarkis yang serupa dengan struktur pohon dalam CFG. Dalam konteks PDA, stack digunakan untuk memantau tag-tag HTML yang telah dibuka tetapi belum ditutup.

Proses Parsing HTML dengan PDA :

- **Membuka Tag:** Ketika PDA menemukan tag pembuka (seperti `<div>`), tag tersebut di-push ke dalam stack. Ini menandai awal dari elemen bersarang.
- **Menutup Tag:** Ketika sebuah tag penutup (seperti `</div>`) ditemukan, PDA memeriksa stack. Jika tag penutup cocok dengan elemen teratas di stack, ini menandakan bahwa blok HTML telah selesai dengan benar, dan tag tersebut di-pop dari stack.
- **Validasi Struktur HTML:** Dengan menggunakan stack, PDA dapat memvalidasi struktur HTML, memastikan setiap tag pembuka memiliki pasangan penutup yang tepat dan bahwa mereka bersarang dengan benar.

Ini sangat penting untuk menghindari kesalahan sintaks dalam HTML yang bisa berdampak pada rendering halaman web.

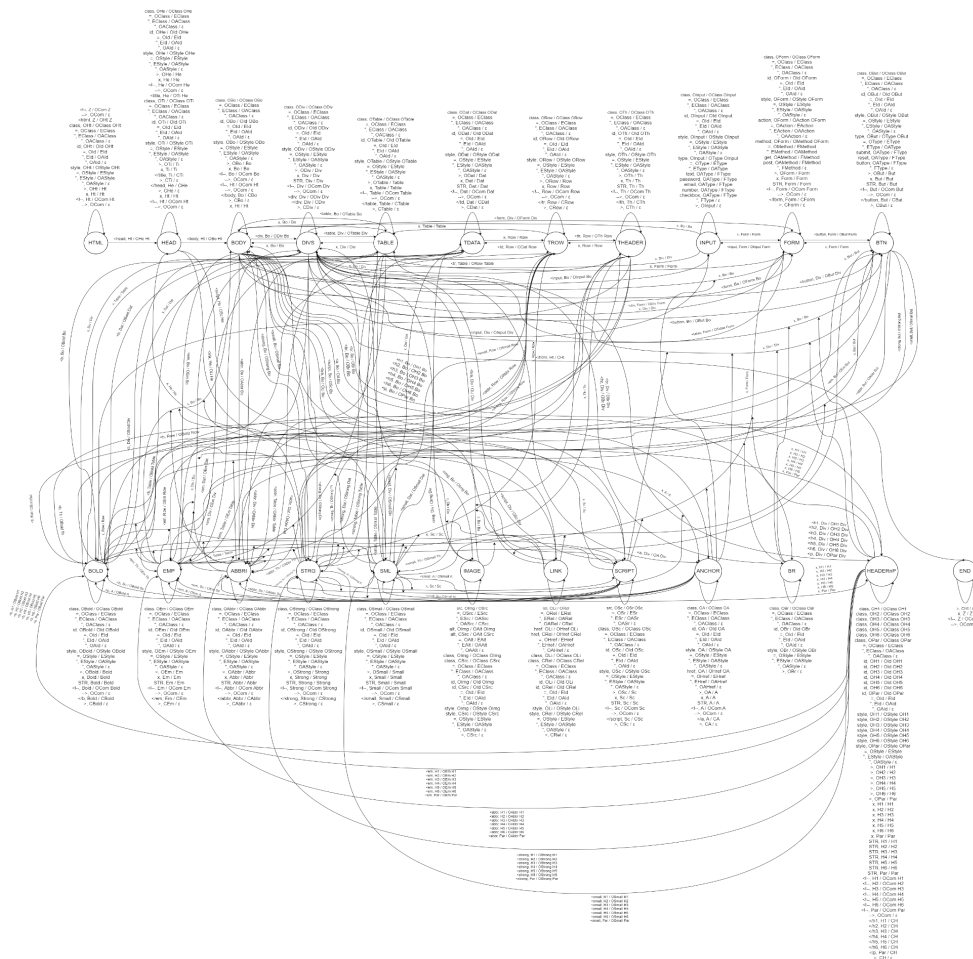
- Pengelolaan Elemen Kosong dan Bersarang: Untuk void elements dalam HTML, yang tidak memerlukan tag penutup, PDA hanya mengabaikannya dalam hal manipulasi stack. Sedangkan untuk elemen bersarang, PDA menangani mereka dengan cermat melalui operasi push dan pop untuk memastikan integritas struktural dokumen HTML.

Melalui pendekatan ini, PDA tidak hanya memberikan alat untuk memvalidasi HTML tetapi juga membantu dalam memahami struktur dokumen HTML secara lebih mendalam. Penerapan PDA dalam analisis HTML menunjukkan bagaimana prinsip teori komputasi dapat diterapkan dalam pengembangan web, memastikan bahwa dokumen HTML dikonstruksi dengan benar, yang esensial untuk pengalaman pengguna yang optimal di web.

BAB II

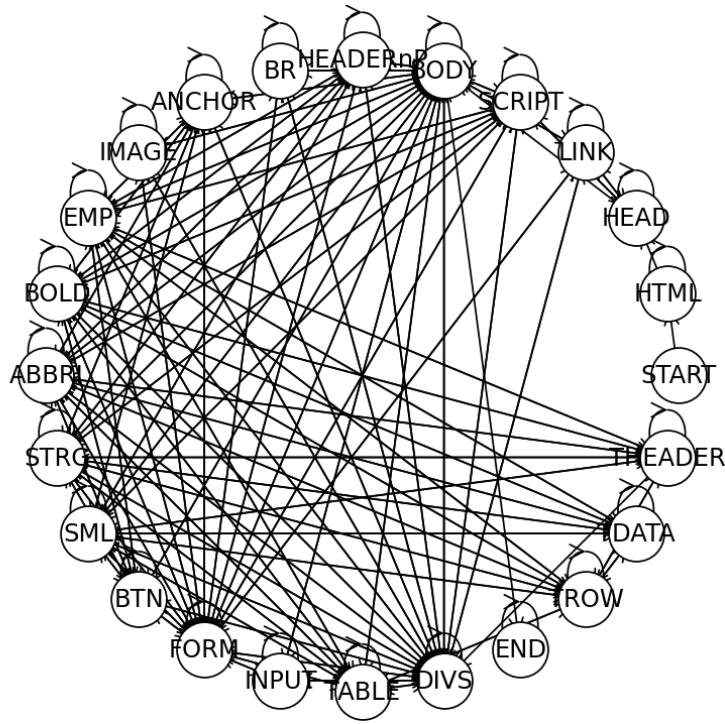
HASIL PDA

Untuk memenuhi spesifikasi, dibuatlah suatu pushdown automata (PDA) dengan state HTML sebagai start state dan Z sebagai start stack symbol. Pushdown automata yang dibuat merupakan pushdown automata yang menerima stack kosong (empty stack acceptability). Pushdown automata yang dibuat cukup kompleks. Pushdown automata ini memiliki banyak keterkaitan antara state dan memiliki banyak fungsi transisi. Berikut merupakan gambaran dari PDA tersebut (link untuk diagram terlampir pada lampiran),



Gambar 1. Pushdown Automata yang dibuat

Untuk gambar lebih jelas dapat mengakses link yang tersedia dalam lampiran.



Gambar 2. PDA tanpa fungsi transisi yang tertulis

PDA yang dibuat terdiri dari 23 states menerima 82 input symbols, dan 112 stack symbols, berikut PDA yang diimplementasikan.

PDA = $(Q, \Sigma, \Gamma, \delta, q_0, Z_0, F)$, dengan masing - masing informasinya berupa,

states: $Q = \{HTML, HEAD, BODY, DIVS, TABLE, TDATA, TROW, THEADER, INPUT, FORM, BTN, BOLD, EMP, ABBRI, STRG, SML, IMAGE, LINK, SCRIPT, ANCHOR, BR, HEADERn, P, END\}$

input symbol: $\Sigma = \{</h4, </small, -->, <tr, <h1, get, button, password, </h5, </form, <script, <th, method, href, </em, checkbox, </strong, </body, </title, </button, ", <em, post, <b, action, x, <button, =, <a, <link, </h2, <strong, </h6, </td, </abbr, <img, </p, <p, email, id, <table, </html, </script, <br, number, </a, <body, <div, submit, <h3, </head, <td, type, src, reset, </tr, <input, <abbr, <head, >, <h6, <html, <small, rel, <h5, class, </h1, <hr, </table, alt, </th, <!--, <h2, style, STR, <form, </h3, </b, </div, <h4, text, <title\}$

stack symbol: $\Gamma = \{CRow, EId, OForm, EClass, H2, OAlt, OPar, CSrc, OStrong, ESrc, OSr, FType, Ti, OAlt, CTable, EAlt, OType, OImg, EAction, H1, CForm, OSc, OSmall, A, OAHref, OH6, Dat, ERel, ORel, OH3, H3, ESr, FMethod, He, Div, Row, OBo, OBold, OAAction, EMethod, CStrong, OAbbr, OId, OTable, OClass, ORow,$

OASrc, EHref, CBut, OH4, OInput, CSc, OMethod, H6, OHref, OAction, OBut, CBold, CRel, But, OHt, CEm, CHt, CDiv, CH, OLi, Bo, H5, Ht, Sc, Th, OARel, OBr, OA, OASyle, EStyle, ODiv, OTh, Abbr, OAMethod, OHe, CAbbr, EType, Table, CSsmall, OSrc, OStyle, Z, CTi, Form, Bold, Strong, OASr, OH1, Par, CBo, OTi, OAType, OH2, CHe, OEm, OH5, Small, OAClass, H4, Em, CA, CDat, OAAlt, ODat, CTh, OCom}

start state: $q_0 = \text{HTML}$

start stack symbol: $Z_0 = Z$

accepting state: $F = \{\text{END}\}$

transition function δ terdiri dari 791 fungsi :

$\delta(\text{HTML}, <!--, Z) = \{(\text{HTML}, \text{OCom } Z)\}$ $\delta(\text{HTML}, -->, \text{OCom}) = \{(\text{HTML}, \epsilon)\}$ $\delta(\text{HTML}, <html, Z) = \{(\text{HTML}, \text{OHt } Z)\}$ $\delta(\text{HTML}, \text{class}, \text{OHt}) = \{(\text{HTML}, \text{OClass OHt})\}$ $\delta(\text{HTML}, =, \text{OClass}) = \{(\text{HTML}, \text{EClass})\}$ $\delta(\text{HTML}, ", \text{EClass}) = \{(\text{HTML}, \text{OAClass})\}$ $\delta(\text{HTML}, ", \text{OAClass}) = \{(\text{HTML}, \epsilon)\}$ $\delta(\text{HTML}, \text{id}, \text{OHt}) = \{(\text{HTML}, \text{OId OHt})\}$ $\delta(\text{HTML}, =, \text{OId}) = \{(\text{HTML}, \text{EId})\}$ $\delta(\text{HTML}, ", \text{EId}) = \{(\text{HTML}, \text{OAIId})\}$ $\delta(\text{HTML}, ", \text{OAIId}) = \{(\text{HTML}, \epsilon)\}$ $\delta(\text{HTML}, \text{style}, \text{OHt}) = \{(\text{HTML}, \text{OStyle OHt})\}$ $\delta(\text{HTML}, =, \text{OStyle}) = \{(\text{HTML}, \text{EStyle})\}$ $\delta(\text{HTML}, ", \text{EStyle}) = \{(\text{HTML}, \text{OASyle})\}$ $\delta(\text{HTML}, ", \text{OASyle}) = \{(\text{HTML}, \epsilon)\}$ $\delta(\text{HTML}, >, \text{OHt}) = \{(\text{HTML}, \text{Ht})\}$ $\delta(\text{HTML}, \text{x}, \text{Ht}) = \{(\text{HTML}, \text{Ht})\}$ $\delta(\text{HTML}, <!--, \text{Ht}) = \{(\text{HTML}, \text{OCom Ht})\}$ $\delta(\text{HTML}, -->, \text{OCom}) = \{(\text{HTML}, \epsilon)\}$ $\delta(\text{HTML}, <head, \text{Ht}) = \{(\text{HEAD}, \text{OHe Ht})\}$ $\delta(\text{HEAD}, \text{class}, \text{OHe}) = \{(\text{HEAD}, \text{OClass OHe})\}$ $\delta(\text{HEAD}, =, \text{OClass}) = \{(\text{HEAD}, \text{EClass})\}$ $\delta(\text{HEAD}, ", \text{EClass}) = \{(\text{HEAD}, \text{OAClass})\}$ $\delta(\text{HEAD}, ", \text{OAClass}) = \{(\text{HEAD}, \epsilon)\}$ $\delta(\text{HEAD}, \text{id}, \text{OHe}) = \{(\text{HEAD}, \text{OId OHe})\}$ $\delta(\text{HEAD}, =, \text{OId}) = \{(\text{HEAD}, \text{EId})\}$ $\delta(\text{HEAD}, ", \text{EId}) = \{(\text{HEAD}, \text{OAIId})\}$ $\delta(\text{HEAD}, ", \text{OAIId}) = \{(\text{HEAD}, \epsilon)\}$ $\delta(\text{HEAD}, \text{style}, \text{OHe}) = \{(\text{HEAD}, \text{OStyle OHe})\}$ $\delta(\text{HEAD}, =, \text{OStyle}) = \{(\text{HEAD}, \text{EStyle})\}$ $\delta(\text{HEAD}, ", \text{EStyle}) = \{(\text{HEAD}, \text{OASyle})\}$ $\delta(\text{HEAD}, ", \text{OASyle}) = \{(\text{HEAD}, \epsilon)\}$ $\delta(\text{HEAD}, >, \text{OHe}) = \{(\text{HEAD}, \text{He})\}$ $\delta(\text{HEAD}, \text{x}, \text{He}) = \{(\text{HEAD}, \text{He})\}$ $\delta(\text{HEAD}, <!--, \text{He}) = \{(\text{HEAD}, \text{OCom He})\}$ $\delta(\text{HEAD}, -->, \text{OCom}) = \{(\text{HEAD}, \epsilon)\}$	$\delta(\text{ABBRI}, \text{class}, \text{OAbbr}) = \{(\text{ABBRI}, \text{OClass OAbbr})\}$ $\delta(\text{ABBRI}, =, \text{OClass}) = \{(\text{ABBRI}, \text{EClass})\}$ $\delta(\text{ABBRI}, ", \text{EClass}) = \{(\text{ABBRI}, \text{OAClass})\}$ $\delta(\text{ABBRI}, ", \text{OAClass}) = \{(\text{ABBRI}, \epsilon)\}$ $\delta(\text{ABBRI}, \text{id}, \text{OAbbr}) = \{(\text{ABBRI}, \text{OId OAbbr})\}$ $\delta(\text{ABBRI}, =, \text{OId}) = \{(\text{ABBRI}, \text{EId})\}$ $\delta(\text{ABBRI}, ", \text{EId}) = \{(\text{ABBRI}, \text{OAIId})\}$ $\delta(\text{ABBRI}, ", \text{OAIId}) = \{(\text{ABBRI}, \epsilon)\}$ $\delta(\text{ABBRI}, \text{style}, \text{OAbbr}) = \{(\text{ABBRI}, \text{OStyle OAbbr})\}$ $\delta(\text{ABBRI}, =, \text{OStyle}) = \{(\text{ABBRI}, \text{EStyle})\}$ $\delta(\text{ABBRI}, ", \text{EStyle}) = \{(\text{ABBRI}, \text{OASyle})\}$ $\delta(\text{ABBRI}, ", \text{OASyle}) = \{(\text{ABBRI}, \epsilon)\}$ $\delta(\text{ABBRI}, >, \text{OAbbr}) = \{(\text{ABBRI}, \text{Abbr})\}$ $\delta(\text{ABBRI}, \text{x}, \text{Abbr}) = \{(\text{ABBRI}, \text{Abbr})\}$ $\delta(\text{ABBRI}, \text{STR}, \text{Abbr}) = \{(\text{ABBRI}, \text{Abbr})\}$ $\delta(\text{ABBRI}, <!--, \text{Abbr}) = \{(\text{ABBRI}, \text{OCom Abbr})\}$ $\delta(\text{ABBRI}, -->, \text{OCom}) = \{(\text{ABBRI}, \epsilon)\}$ $\delta(\text{ABBRI}, </abbr, \text{Abbr}) = \{(\text{ABBRI}, \text{CAbbr})\}$ $\delta(\text{ABBRI}, >, \text{CAbbr}) = \{(\text{ABBRI}, \epsilon)\}$ $\delta(\text{ABBRI}, \text{x}, \text{Bo}) = \{(\text{BODY}, \text{Bo})\}$ $\delta(\text{ABBRI}, \text{x}, \text{Div}) = \{(\text{DIVS}, \text{Div})\}$ $\delta(\text{ABBRI}, \text{x}, \text{H1}) = \{(\text{HEADERnP}, \text{H1})\}$ $\delta(\text{ABBRI}, \text{x}, \text{H2}) = \{(\text{HEADERnP}, \text{H2})\}$ $\delta(\text{ABBRI}, \text{x}, \text{H3}) = \{(\text{HEADERnP}, \text{H3})\}$ $\delta(\text{ABBRI}, \text{x}, \text{H4}) = \{(\text{HEADERnP}, \text{H4})\}$ $\delta(\text{ABBRI}, \text{x}, \text{H5}) = \{(\text{HEADERnP}, \text{H5})\}$ $\delta(\text{ABBRI}, \text{x}, \text{H6}) = \{(\text{HEADERnP}, \text{H6})\}$ $\delta(\text{ABBRI}, \text{x}, \text{Par}) = \{(\text{HEADERnP}, \text{Par})\}$ $\delta(\text{ABBRI}, \text{x}, \text{Table}) = \{(\text{TABLE}, \text{Table})\}$ $\delta(\text{ABBRI}, \text{x}, \text{Row}) = \{(\text{TROW}, \text{Row})\}$ $\delta(\text{ABBRI}, \text{x}, \text{Dat}) = \{(\text{TDATA}, \text{Dat})\}$ $\delta(\text{ABBRI}, \text{x}, \text{Th}) = \{(\text{THEADER}, \text{Th})\}$ $\delta(\text{ABBRI}, \text{x}, \text{Form}) = \{(\text{FORM}, \text{Form})\}$ $\delta(\text{ABBRI}, \text{x}, \text{But}) = \{(\text{BTN}, \text{But})\}$ $\delta(\text{ABBRI}, \text{x}, \text{A}) = \{(\text{ANCHOR}, \text{A})\}$ $\delta(\text{ABBRI}, \text{x}, \text{Sc}) = \{(\text{SCRIPT}, \text{Sc})\}$
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$\delta(\text{HEAD}, \text{<title}, \text{He}) = \{(\text{HEAD}, \text{OTi He})\}$ $\delta(\text{HEAD}, \text{class}, \text{OTi}) = \{(\text{HEAD}, \text{OClass OTi})\}$ $\delta(\text{HEAD}, \text{=}, \text{OClass}) = \{(\text{HEAD}, \text{EClass})\}$ $\delta(\text{HEAD}, \text{"}, \text{EClass}) = \{(\text{HEAD}, \text{OAClass})\}$ $\delta(\text{HEAD}, \text{"}, \text{OAClass}) = \{(\text{HEAD}, \varepsilon)\}$ $\delta(\text{HEAD}, \text{id}, \text{OTi}) = \{(\text{HEAD}, \text{Old OTi})\}$ $\delta(\text{HEAD}, \text{=}, \text{Old}) = \{(\text{HEAD}, \text{EId})\}$ $\delta(\text{HEAD}, \text{"}, \text{EId}) = \{(\text{HEAD}, \text{OAId})\}$ $\delta(\text{HEAD}, \text{"}, \text{OAId}) = \{(\text{HEAD}, \varepsilon)\}$ $\delta(\text{HEAD}, \text{style}, \text{OTi}) = \{(\text{HEAD}, \text{OStyle OTi})\}$ $\delta(\text{HEAD}, \text{=}, \text{OStyle}) = \{(\text{HEAD}, \text{EStyle})\}$ $\delta(\text{HEAD}, \text{"}, \text{EStyle}) = \{(\text{HEAD}, \text{OASStyle})\}$ $\delta(\text{HEAD}, \text{"}, \text{OASStyle}) = \{(\text{HEAD}, \varepsilon)\}$ $\delta(\text{HEAD}, \text{>}, \text{OTi}) = \{(\text{HEAD}, \text{Ti})\}$ $\delta(\text{HEAD}, \text{x}, \text{Ti}) = \{(\text{HEAD}, \text{Ti})\}$ $\delta(\text{HEAD}, \text{</title}, \text{Ti}) = \{(\text{HEAD}, \text{CTi})\}$ $\delta(\text{HEAD}, \text{>}, \text{CTi}) = \{(\text{HEAD}, \varepsilon)\}$ $\delta(\text{HEAD}, \text{<link}, \text{He}) = \{(\text{LINK}, \text{OLi He})\}$ $\delta(\text{HEAD}, \text{<script}, \text{He}) = \{(\text{SCRIPT}, \text{OSc He})\}$ $\delta(\text{HEAD}, \text{</head}, \text{He}) = \{(\text{HEAD}, \text{CHe})\}$ $\delta(\text{HEAD}, \text{>}, \text{CHe}) = \{(\text{HEAD}, \varepsilon)\}$ $\delta(\text{HEAD}, \text{x}, \text{Ht}) = \{(\text{HEAD}, \text{Ht})\}$ $\delta(\text{HEAD}, \text{<!--}, \text{Ht}) = \{(\text{HEAD}, \text{OCom Ht})\}$ $\delta(\text{HEAD}, \text{-->}, \text{OCom}) = \{(\text{HEAD}, \varepsilon)\}$ $\delta(\text{HEAD}, \text{<body}, \text{Ht}) = \{(\text{BODY}, \text{OBo Ht})\}$ $\delta(\text{BODY}, \text{class}, \text{OBo}) = \{(\text{BODY}, \text{OClass OBo})\}$ $\delta(\text{BODY}, \text{=}, \text{OClass}) = \{(\text{BODY}, \text{EClass})\}$ $\delta(\text{BODY}, \text{"}, \text{EClass}) = \{(\text{BODY}, \text{OAClass})\}$ $\delta(\text{BODY}, \text{"}, \text{OAClass}) = \{(\text{BODY}, \varepsilon)\}$ $\delta(\text{BODY}, \text{id}, \text{OBo}) = \{(\text{BODY}, \text{Old OBo})\}$ $\delta(\text{BODY}, \text{=}, \text{Old}) = \{(\text{BODY}, \text{EId})\}$ $\delta(\text{BODY}, \text{"}, \text{EId}) = \{(\text{BODY}, \text{OAId})\}$ $\delta(\text{BODY}, \text{"}, \text{OAId}) = \{(\text{BODY}, \varepsilon)\}$ $\delta(\text{BODY}, \text{style}, \text{OBo}) = \{(\text{BODY}, \text{OStyle OBo})\}$ $\delta(\text{BODY}, \text{=}, \text{OStyle}) = \{(\text{BODY}, \text{EStyle})\}$ $\delta(\text{BODY}, \text{"}, \text{EStyle}) = \{(\text{BODY}, \text{OASStyle})\}$ $\delta(\text{BODY}, \text{"}, \text{OASStyle}) = \{(\text{BODY}, \varepsilon)\}$ $\delta(\text{BODY}, \text{>}, \text{OBo}) = \{(\text{BODY}, \text{Bo})\}$ $\delta(\text{BODY}, \text{x}, \text{Bo}) = \{(\text{BODY}, \text{Bo})\}$ $\delta(\text{BODY}, \text{<!--}, \text{Bo}) = \{(\text{BODY}, \text{OCom Bo})\}$ $\delta(\text{BODY}, \text{-->}, \text{OCom}) = \{(\text{BODY}, \varepsilon)\}$ $\delta(\text{BODY}, \text{<!--}, \text{Ht}) = \{(\text{BODY}, \text{OCom Ht})\}$ $\delta(\text{BODY}, \text{-->}, \text{OCom}) = \{(\text{BODY}, \varepsilon)\}$ $\delta(\text{BODY}, \text{<link}, \text{Bo}) = \{(\text{LINK}, \text{OLi Bo})\}$ $\delta(\text{BODY}, \text{<script}, \text{Bo}) = \{(\text{SCRIPT}, \text{OSc Bo})\}$ $\delta(\text{BODY}, \text{<h1}, \text{Bo}) = \{(\text{HEADERnP}, \text{OH1 Bo})\}$ $\delta(\text{BODY}, \text{<h2}, \text{Bo}) = \{(\text{HEADERnP}, \text{OH2 Bo})\}$ $\delta(\text{BODY}, \text{<h3}, \text{Bo}) = \{(\text{HEADERnP}, \text{OH3 Bo})\}$ $\delta(\text{BODY}, \text{<h4}, \text{Bo}) = \{(\text{HEADERnP}, \text{OH4 Bo})\}$	$\delta(\text{STRG}, \text{class}, \text{OStrong}) = \{(\text{STRG}, \text{OClass OStrong})\}$ $\delta(\text{STRG}, \text{=}, \text{OClass}) = \{(\text{STRG}, \text{EClass})\}$ $\delta(\text{STRG}, \text{"}, \text{EClass}) = \{(\text{STRG}, \text{OAClass})\}$ $\delta(\text{STRG}, \text{"}, \text{OAClass}) = \{(\text{STRG}, \varepsilon)\}$ $\delta(\text{STRG}, \text{id}, \text{OStrong}) = \{(\text{STRG}, \text{Old OStrong})\}$ $\delta(\text{STRG}, \text{=}, \text{Old}) = \{(\text{STRG}, \text{EId})\}$ $\delta(\text{STRG}, \text{"}, \text{EId}) = \{(\text{STRG}, \text{OAId})\}$ $\delta(\text{STRG}, \text{"}, \text{OAId}) = \{(\text{STRG}, \varepsilon)\}$ $\delta(\text{STRG}, \text{style}, \text{OStrong}) = \{(\text{STRG}, \text{OStyle OStrong})\}$ $\delta(\text{STRG}, \text{=}, \text{OStyle}) = \{(\text{STRG}, \text{EStyle})\}$ $\delta(\text{STRG}, \text{"}, \text{EStyle}) = \{(\text{STRG}, \text{OASStyle})\}$ $\delta(\text{STRG}, \text{"}, \text{OASStyle}) = \{(\text{STRG}, \varepsilon)\}$ $\delta(\text{STRG}, \text{>}, \text{OStrong}) = \{(\text{STRG}, \text{Strong})\}$ $\delta(\text{STRG}, \text{x}, \text{Strong}) = \{(\text{STRG}, \text{Strong})\}$ $\delta(\text{STRG}, \text{STR}, \text{Strong}) = \{(\text{STRG}, \text{Strong})\}$ $\delta(\text{STRG}, \text{<!--}, \text{Strong}) = \{(\text{STRG}, \text{OCom Strong})\}$ $\delta(\text{STRG}, \text{-->}, \text{OCom}) = \{(\text{STRG}, \varepsilon)\}$ $\delta(\text{STRG}, \text{</strong}, \text{Strong}) = \{(\text{STRG}, \text{CStrong})\}$ $\delta(\text{STRG}, \text{>}, \text{CStrong}) = \{(\text{STRG}, \varepsilon)\}$ $\delta(\text{STRG}, \text{x}, \text{Bo}) = \{(\text{BODY}, \text{Bo})\}$ $\delta(\text{STRG}, \text{x}, \text{Div}) = \{(\text{DIVS}, \text{Div})\}$ $\delta(\text{STRG}, \text{x}, \text{H1}) = \{(\text{HEADERnP}, \text{H1})\}$ $\delta(\text{STRG}, \text{x}, \text{H2}) = \{(\text{HEADERnP}, \text{H2})\}$ $\delta(\text{STRG}, \text{x}, \text{H3}) = \{(\text{HEADERnP}, \text{H3})\}$ $\delta(\text{STRG}, \text{x}, \text{H4}) = \{(\text{HEADERnP}, \text{H4})\}$ $\delta(\text{STRG}, \text{x}, \text{H5}) = \{(\text{HEADERnP}, \text{H5})\}$ $\delta(\text{STRG}, \text{x}, \text{H6}) = \{(\text{HEADERnP}, \text{H6})\}$ $\delta(\text{STRG}, \text{x}, \text{Par}) = \{(\text{HEADERnP}, \text{Par})\}$ $\delta(\text{STRG}, \text{x}, \text{Table}) = \{(\text{TABLE}, \text{Table})\}$ $\delta(\text{STRG}, \text{x}, \text{Row}) = \{(\text{TROW}, \text{Row})\}$ $\delta(\text{STRG}, \text{x}, \text{Dat}) = \{(\text{TDATA}, \text{Dat})\}$ $\delta(\text{STRG}, \text{x}, \text{Th}) = \{(\text{THEADER}, \text{Th})\}$ $\delta(\text{STRG}, \text{x}, \text{Form}) = \{(\text{FORM}, \text{Form})\}$ $\delta(\text{STRG}, \text{x}, \text{But}) = \{(\text{BTN}, \text{But})\}$ $\delta(\text{STRG}, \text{x}, \text{A}) = \{(\text{ANCHOR}, \text{A})\}$ $\delta(\text{STRG}, \text{x}, \text{Sc}) = \{(\text{SCRIPT}, \text{Sc})\}$ $\delta(\text{SML}, \text{class}, \text{OSmall}) = \{(\text{SML}, \text{OClass OSmall})\}$ $\delta(\text{SML}, \text{=}, \text{OClass}) = \{(\text{SML}, \text{EClass})\}$ $\delta(\text{SML}, \text{"}, \text{EClass}) = \{(\text{SML}, \text{OAClass})\}$ $\delta(\text{SML}, \text{"}, \text{OAClass}) = \{(\text{SML}, \varepsilon)\}$ $\delta(\text{SML}, \text{id}, \text{OSmall}) = \{(\text{SML}, \text{Old OSmall})\}$ $\delta(\text{SML}, \text{=}, \text{Old}) = \{(\text{SML}, \text{EId})\}$ $\delta(\text{SML}, \text{"}, \text{EId}) = \{(\text{SML}, \text{OAId})\}$ $\delta(\text{SML}, \text{"}, \text{OAId}) = \{(\text{SML}, \varepsilon)\}$ $\delta(\text{SML}, \text{style}, \text{OSmall}) = \{(\text{SML}, \text{OStyle OSmall})\}$ $\delta(\text{SML}, \text{=}, \text{OStyle}) = \{(\text{SML}, \text{EStyle})\}$ $\delta(\text{SML}, \text{"}, \text{EStyle}) = \{(\text{SML}, \text{OASStyle})\}$ $\delta(\text{SML}, \text{"}, \text{OASStyle}) = \{(\text{SML}, \varepsilon)\}$ $\delta(\text{SML}, \text{>}, \text{OSmall}) = \{(\text{SML}, \text{Small})\}$
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$\delta(\text{BODY}, \text{<h5}, \text{Bo}) = \{(\text{HEADERnP}, \text{OH5 Bo})\}$	$\delta(\text{SML}, \text{x}, \text{Small}) = \{(\text{SML}, \text{Small})\}$
$\delta(\text{BODY}, \text{<h6}, \text{Bo}) = \{(\text{HEADERnP}, \text{OH6 Bo})\}$	$\delta(\text{SML}, \text{STR}, \text{Small}) = \{(\text{SML}, \text{Small})\}$
$\delta(\text{BODY}, \text{<p}, \text{Bo}) = \{(\text{HEADERnP}, \text{OPar Bo})\}$	$\delta(\text{SML}, \text{<!--}, \text{Small}) = \{(\text{SML}, \text{OCom Small})\}$
$\delta(\text{BODY}, \text{<br}, \text{Bo}) = \{(\text{BR}, \text{OBr Bo})\}$	$\delta(\text{SML}, \text{-->}, \text{OCom}) = \{(\text{SML}, \varepsilon)\}$
$\delta(\text{BODY}, \text{<hr}, \text{Bo}) = \{(\text{BR}, \text{OBr Bo})\}$	$\delta(\text{SML}, \text{</small}, \text{Small}) = \{(\text{SML}, \text{CSmall})\}$
$\delta(\text{BODY}, \text{<a}, \text{Bo}) = \{(\text{ANCHOR}, \text{OA Bo})\}$	$\delta(\text{SML}, \text{>}, \text{CSmall}) = \{(\text{SML}, \varepsilon)\}$
$\delta(\text{BODY}, \text{<img}, \text{Bo}) = \{(\text{IMAGE}, \text{OImg Bo})\}$	$\delta(\text{SML}, \text{x}, \text{Bo}) = \{(\text{BODY}, \text{Bo})\}$
$\delta(\text{BODY}, \text{<em}, \text{Bo}) = \{(\text{EMP}, \text{OEm Bo})\}$	$\delta(\text{SML}, \text{x}, \text{Div}) = \{(\text{DIVS}, \text{Div})\}$
$\delta(\text{BODY}, \text{<b}, \text{Bo}) = \{(\text{BOLD}, \text{OBold Bo})\}$	$\delta(\text{SML}, \text{x}, \text{H1}) = \{(\text{HEADERnP}, \text{H1})\}$
$\delta(\text{BODY}, \text{<abbr}, \text{Bo}) = \{(\text{ABBRI}, \text{OAbbr Bo})\}$	$\delta(\text{SML}, \text{x}, \text{H2}) = \{(\text{HEADERnP}, \text{H2})\}$
$\delta(\text{BODY}, \text{<strong}, \text{Bo}) = \{(\text{STRG}, \text{OStrong Bo})\}$	$\delta(\text{SML}, \text{x}, \text{H3}) = \{(\text{HEADERnP}, \text{H3})\}$
$\delta(\text{BODY}, \text{<small}, \text{Bo}) = \{(\text{SML}, \text{OSmall Bo})\}$	$\delta(\text{SML}, \text{x}, \text{H4}) = \{(\text{HEADERnP}, \text{H4})\}$
$\delta(\text{BODY}, \text{<button}, \text{Bo}) = \{(\text{BTN}, \text{OBut Bo})\}$	$\delta(\text{SML}, \text{x}, \text{H5}) = \{(\text{HEADERnP}, \text{H5})\}$
$\delta(\text{BODY}, \text{<form}, \text{Bo}) = \{(\text{FORM}, \text{OForm Bo})\}$	$\delta(\text{SML}, \text{x}, \text{H6}) = \{(\text{HEADERnP}, \text{H6})\}$
$\delta(\text{BODY}, \text{<input}, \text{Bo}) = \{(\text{INPUT}, \text{OInput Bo})\}$	$\delta(\text{SML}, \text{x}, \text{Par}) = \{(\text{HEADERnP}, \text{Par})\}$
$\delta(\text{BODY}, \text{<table}, \text{Bo}) = \{(\text{TABLE}, \text{OTable Bo})\}$	$\delta(\text{SML}, \text{x}, \text{Table}) = \{(\text{TABLE}, \text{Table})\}$
$\delta(\text{BODY}, \text{<div}, \text{Bo}) = \{(\text{DIVS}, \text{ODiv Bo})\}$	$\delta(\text{SML}, \text{x}, \text{Row}) = \{(\text{TROW}, \text{Row})\}$
$\delta(\text{BODY}, \text{</body}, \text{Bo}) = \{(\text{BODY}, \text{CBo})\}$	$\delta(\text{SML}, \text{x}, \text{Dat}) = \{(\text{TDATA}, \text{Dat})\}$
$\delta(\text{BODY}, \text{>}, \text{CBo}) = \{(\text{BODY}, \varepsilon)\}$	$\delta(\text{SML}, \text{x}, \text{Th}) = \{(\text{THEADER}, \text{Th})\}$
$\delta(\text{BODY}, \text{x}, \text{Ht}) = \{(\text{BODY}, \text{Ht})\}$	$\delta(\text{SML}, \text{x}, \text{Form}) = \{(\text{FORM}, \text{Form})\}$
$\delta(\text{BODY}, \text{</html}, \text{Ht}) = \{(\text{END}, \text{CHt})\}$	$\delta(\text{SML}, \text{x}, \text{But}) = \{(\text{BTN}, \text{But})\}$
$\delta(\text{TABLE}, \text{class}, \text{OTable}) = \{(\text{TABLE}, \text{OClass OTable})\}$	$\delta(\text{SML}, \text{x}, \text{A}) = \{(\text{ANCHOR}, \text{A})\}$
$\delta(\text{TABLE}, \text{=}, \text{OClass}) = \{(\text{TABLE}, \text{EClass})\}$	$\delta(\text{SML}, \text{x}, \text{Sc}) = \{(\text{SCRIPT}, \text{Sc})\}$
$\delta(\text{TABLE}, \text{"}, \text{EClass}) = \{(\text{TABLE}, \text{OAClass})\}$	$\delta(\text{IMAGE}, \text{src}, \text{OImg}) = \{(\text{IMAGE}, \text{OSrc})\}$
$\delta(\text{TABLE}, \text{"}, \text{OAClass}) = \{(\text{TABLE}, \varepsilon)\}$	$\delta(\text{IMAGE}, \text{=}, \text{OSrc}) = \{(\text{IMAGE}, \text{ESrc})\}$
$\delta(\text{TABLE}, \text{id}, \text{OTable}) = \{(\text{TABLE}, \text{Old OTable})\}$	$\delta(\text{IMAGE}, \text{"}, \text{ESrc}) = \{(\text{IMAGE}, \text{OASrc})\}$
$\delta(\text{TABLE}, \text{=}, \text{Old}) = \{(\text{TABLE}, \text{EId})\}$	$\delta(\text{IMAGE}, \text{"}, \text{OASrc}) = \{(\text{IMAGE}, \text{CSrc})\}$
$\delta(\text{TABLE}, \text{"}, \text{EId}) = \{(\text{TABLE}, \text{OAId})\}$	$\delta(\text{IMAGE}, \text{alt}, \text{OImg}) = \{(\text{IMAGE}, \text{OAlt OImg})\}$
$\delta(\text{TABLE}, \text{"}, \text{OAId}) = \{(\text{TABLE}, \varepsilon)\}$	$\delta(\text{IMAGE}, \text{alt}, \text{CSrc}) = \{(\text{IMAGE}, \text{OAlt CSrc})\}$
$\delta(\text{TABLE}, \text{style}, \text{OTable}) = \{(\text{TABLE}, \text{OStyle OTable})\}$	$\delta(\text{IMAGE}, \text{=}, \text{OAlt}) = \{(\text{IMAGE}, \text{EAlt})\}$
$\delta(\text{TABLE}, \text{=}, \text{OStyle}) = \{(\text{TABLE}, \text{EStyle})\}$	$\delta(\text{IMAGE}, \text{"}, \text{EAlt}) = \{(\text{IMAGE}, \text{OAAlt})\}$
$\delta(\text{TABLE}, \text{"}, \text{EStyle}) = \{(\text{TABLE}, \text{OASStyle})\}$	$\delta(\text{IMAGE}, \text{"}, \text{OAAlt}) = \{(\text{IMAGE}, \varepsilon)\}$
$\delta(\text{TABLE}, \text{"}, \text{OASStyle}) = \{(\text{TABLE}, \varepsilon)\}$	$\delta(\text{IMAGE}, \text{class}, \text{OImg}) = \{(\text{IMAGE}, \text{OClass OImg})\}$
$\delta(\text{TABLE}, \text{>}, \text{OTable}) = \{(\text{TABLE}, \text{Table})\}$	$\delta(\text{IMAGE}, \text{class}, \text{CSrc}) = \{(\text{IMAGE}, \text{OClass CSrc})\}$
$\delta(\text{TABLE}, \text{x}, \text{Table}) = \{(\text{TABLE}, \text{Table})\}$	$\delta(\text{IMAGE}, \text{=}, \text{OClass}) = \{(\text{IMAGE}, \text{EClass})\}$
$\delta(\text{TABLE}, \text{<em}, \text{Table}) = \{(\text{EMP}, \text{OEm Table})\}$	$\delta(\text{IMAGE}, \text{"}, \text{EClass}) = \{(\text{IMAGE}, \text{OAClass})\}$
$\delta(\text{TABLE}, \text{<b}, \text{Table}) = \{(\text{BOLD}, \text{OBold Table})\}$	$\delta(\text{IMAGE}, \text{"}, \text{OAClass}) = \{(\text{IMAGE}, \varepsilon)\}$
$\delta(\text{TABLE}, \text{<abbr}, \text{Table}) = \{(\text{ABBRI}, \text{OAbbr Table})\}$	$\delta(\text{IMAGE}, \text{id}, \text{OImg}) = \{(\text{IMAGE}, \text{Old OImg})\}$
$\delta(\text{TABLE}, \text{<strong}, \text{Table}) = \{(\text{STRG}, \text{OStrong Table})\}$	$\delta(\text{IMAGE}, \text{id}, \text{CSrc}) = \{(\text{IMAGE}, \text{Old CSrc})\}$
$\delta(\text{TABLE}, \text{<small}, \text{Table}) = \{(\text{SML}, \text{OSmall Table})\}$	$\delta(\text{IMAGE}, \text{=}, \text{Old}) = \{(\text{IMAGE}, \text{EId})\}$
$\delta(\text{TABLE}, \text{<!--}, \text{Table}) = \{(\text{TABLE}, \text{OCom Table})\}$	$\delta(\text{IMAGE}, \text{"}, \text{EId}) = \{(\text{IMAGE}, \text{OAId})\}$
$\delta(\text{TABLE}, \text{-->}, \text{OCom}) = \{(\text{TABLE}, \varepsilon)\}$	$\delta(\text{IMAGE}, \text{"}, \text{OAId}) = \{(\text{IMAGE}, \varepsilon)\}$
$\delta(\text{TABLE}, \text{<tr}, \text{Table}) = \{(\text{TROW}, \text{ORow Table})\}$	$\delta(\text{IMAGE}, \text{style}, \text{OImg}) = \{(\text{IMAGE}, \text{OStyle OImg})\}$
$\delta(\text{TABLE}, \text{</table}, \text{Table}) = \{(\text{TABLE}, \text{CTable})\}$	$\delta(\text{IMAGE}, \text{style}, \text{CSrc}) = \{(\text{IMAGE}, \text{OStyle CSrc})\}$
$\delta(\text{TABLE}, \text{>}, \text{CTable}) = \{(\text{TABLE}, \varepsilon)\}$	$\delta(\text{IMAGE}, \text{=}, \text{OStyle}) = \{(\text{IMAGE}, \text{EStyle})\}$
$\delta(\text{TABLE}, \text{x}, \text{Bo}) = \{(\text{BODY}, \text{Bo})\}$	$\delta(\text{IMAGE}, \text{"}, \text{EStyle}) = \{(\text{IMAGE}, \text{OASStyle})\}$
$\delta(\text{TABLE}, \text{x}, \text{Div}) = \{(\text{DIVS}, \text{Div})\}$	$\delta(\text{IMAGE}, \text{"}, \text{OASStyle}) = \{(\text{IMAGE}, \varepsilon)\}$
$\delta(\text{TABLE}, \text{x}, \text{Form}) = \{(\text{FORM}, \text{Form})\}$	$\delta(\text{IMAGE}, \text{>}, \text{CSrc}) = \{(\text{IMAGE}, \varepsilon)\}$
$\delta(\text{TROW}, \text{class}, \text{ORow}) = \{(\text{TROW}, \text{OClass ORow})\}$	$\delta(\text{IMAGE}, \text{x}, \text{Bo}) = \{(\text{BODY}, \text{Bo})\}$

$\delta(\text{TROW}, =, \text{OClass}) = \{(\text{TROW}, \text{EClass})\}$	$\delta(\text{IMAGE}, x, \text{Div}) = \{(\text{DIVS}, \text{Div})\}$
$\delta(\text{TROW}, ", \text{EClass}) = \{(\text{TROW}, \text{OAClass})\}$	$\delta(\text{IMAGE}, x, \text{Form}) = \{(\text{FORM}, \text{Form})\}$
$\delta(\text{TROW}, ", \text{OAClass}) = \{(\text{TROW}, \varepsilon)\}$	$\delta(\text{ANCHOR}, \text{class}, \text{OA}) = \{(\text{ANCHOR}, \text{OClass OA})\}$
$\delta(\text{TROW}, \text{id}, \text{ORow}) = \{(\text{TROW}, \text{OId ORow})\}$	$\delta(\text{ANCHOR}, =, \text{OClass}) = \{(\text{ANCHOR}, \text{EClass})\}$
$\delta(\text{TROW}, =, \text{OId}) = \{(\text{TROW}, \text{EId})\}$	$\delta(\text{ANCHOR}, ", \text{EClass}) = \{(\text{ANCHOR}, \text{OAClass})\}$
$\delta(\text{TROW}, ", \text{EId}) = \{(\text{TROW}, \text{OAIId})\}$	$\delta(\text{ANCHOR}, ", \text{OAClass}) = \{(\text{ANCHOR}, \varepsilon)\}$
$\delta(\text{TROW}, ", \text{OAIId}) = \{(\text{TROW}, \varepsilon)\}$	$\delta(\text{ANCHOR}, \text{id}, \text{OA}) = \{(\text{ANCHOR}, \text{OId OA})\}$
$\delta(\text{TROW}, \text{style}, \text{ORow}) = \{(\text{TROW}, \text{OStyle ORow})\}$	$\delta(\text{ANCHOR}, =, \text{OId}) = \{(\text{ANCHOR}, \text{EId})\}$
$\delta(\text{TROW}, =, \text{OStyle}) = \{(\text{TROW}, \text{EStyle})\}$	$\delta(\text{ANCHOR}, ", \text{EId}) = \{(\text{ANCHOR}, \text{OAIId})\}$
$\delta(\text{TROW}, ", \text{EStyle}) = \{(\text{TROW}, \text{OASStyle})\}$	$\delta(\text{ANCHOR}, ", \text{OAIId}) = \{(\text{ANCHOR}, \varepsilon)\}$
$\delta(\text{TROW}, ", \text{OASStyle}) = \{(\text{TROW}, \varepsilon)\}$	$\delta(\text{ANCHOR}, \text{style}, \text{OA}) = \{(\text{ANCHOR}, \text{OStyle OA})\}$
$\delta(\text{TROW}, >, \text{ORow}) = \{(\text{TROW}, \text{Row})\}$	$\delta(\text{ANCHOR}, =, \text{OStyle}) = \{(\text{ANCHOR}, \text{EStyle})\}$
$\delta(\text{TROW}, x, \text{Row}) = \{(\text{TROW}, \text{Row})\}$	$\delta(\text{ANCHOR}, ", \text{EStyle}) = \{(\text{ANCHOR}, \text{OASStyle})\}$
$\delta(\text{TROW}, <\text{em}, \text{Row}) = \{(\text{EMP}, \text{OEm Row})\}$	$\delta(\text{ANCHOR}, ", \text{OASStyle}) = \{(\text{ANCHOR}, \varepsilon)\}$
$\delta(\text{TROW}, <\text{b}, \text{Row}) = \{(\text{BOLD}, \text{OBold Row})\}$	$\delta(\text{ANCHOR}, \text{href}, \text{OA}) = \{(\text{ANCHOR}, \text{OHref OA})\}$
$\delta(\text{TROW}, <\text{abbr}, \text{Row}) = \{(\text{ABBRI}, \text{OAbbr Row})\}$	$\delta(\text{ANCHOR}, =, \text{OHref}) = \{(\text{ANCHOR}, \text{EHref})\}$
$\delta(\text{TROW}, <\text{strong}, \text{Row}) = \{(\text{STRG}, \text{OStrong Row})\}$	$\delta(\text{ANCHOR}, ", \text{EHref}) = \{(\text{ANCHOR}, \text{OAHref})\}$
$\delta(\text{TROW}, <\text{small}, \text{Row}) = \{(\text{SML}, \text{OSmall Row})\}$	$\delta(\text{ANCHOR}, ", \text{OAHref}) = \{(\text{ANCHOR}, \varepsilon)\}$
$\delta(\text{TROW}, <\text{!-}, \text{Row}) = \{(\text{TROW}, \text{OCom Row})\}$	$\delta(\text{ANCHOR}, >, \text{OA}) = \{(\text{ANCHOR}, \text{A})\}$
$\delta(\text{TROW}, \text{-->, OCom}) = \{(\text{TROW}, \varepsilon)\}$	$\delta(\text{ANCHOR}, x, \text{A}) = \{(\text{ANCHOR}, \text{A})\}$
$\delta(\text{TROW}, <\text{td}, \text{Row}) = \{(\text{TDATA}, \text{ODat Row})\}$	$\delta(\text{ANCHOR}, \text{STR}, \text{A}) = \{(\text{ANCHOR}, \text{A})\}$
$\delta(\text{TROW}, <\text{th}, \text{Row}) = \{(\text{THEADER}, \text{OTh Row})\}$	$\delta(\text{ANCHOR}, <\text{em}, \text{A}) = \{(\text{EMP}, \text{OEm A})\}$
$\delta(\text{TROW}, <\text{tr}, \text{Row}) = \{(\text{TROW}, \text{CRow})\}$	$\delta(\text{ANCHOR}, <\text{b}, \text{A}) = \{(\text{BOLD}, \text{OBold A})\}$
$\delta(\text{TROW}, >, \text{CRow}) = \{(\text{TROW}, \varepsilon)\}$	$\delta(\text{ANCHOR}, <\text{abbr}, \text{A}) = \{(\text{ABBRI}, \text{OAbbr A})\}$
$\delta(\text{TROW}, x, \text{Table}) = \{(\text{TABLE}, \text{Table})\}$	$\delta(\text{ANCHOR}, <\text{strong}, \text{A}) = \{(\text{STRG}, \text{OStrong A})\}$
$\delta(\text{TDATA}, \text{class}, \text{ODat}) = \{(\text{TDATA}, \text{OClass ODat})\}$	$\delta(\text{ANCHOR}, <\text{small}, \text{A}) = \{(\text{SML}, \text{OSmall A})\}$
$\delta(\text{TDATA}, =, \text{OClass}) = \{(\text{TDATA}, \text{EClass})\}$	$\delta(\text{ANCHOR}, <\text{!-}, \text{A}) = \{(\text{ANCHOR}, \text{OCom A})\}$
$\delta(\text{TDATA}, ", \text{EClass}) = \{(\text{TDATA}, \text{OAClass})\}$	$\delta(\text{ANCHOR}, \text{-->, OCom}) = \{(\text{ANCHOR}, \varepsilon)\}$
$\delta(\text{TDATA}, ", \text{OAClass}) = \{(\text{TDATA}, \varepsilon)\}$	$\delta(\text{ANCHOR}, <\text{a}, \text{A}) = \{(\text{ANCHOR}, \text{CA})\}$
$\delta(\text{TDATA}, \text{id}, \text{ODat}) = \{(\text{TDATA}, \text{OId ODat})\}$	$\delta(\text{ANCHOR}, >, \text{CA}) = \{(\text{ANCHOR}, \varepsilon)\}$
$\delta(\text{TDATA}, =, \text{OId}) = \{(\text{TDATA}, \text{EId})\}$	$\delta(\text{ANCHOR}, x, \text{Bo}) = \{(\text{BODY}, \text{Bo})\}$
$\delta(\text{TDATA}, ", \text{EId}) = \{(\text{TDATA}, \text{OAIId})\}$	$\delta(\text{ANCHOR}, x, \text{Div}) = \{(\text{DIVS}, \text{Div})\}$
$\delta(\text{TDATA}, ", \text{OAIId}) = \{(\text{TDATA}, \varepsilon)\}$	$\delta(\text{ANCHOR}, x, \text{Form}) = \{(\text{FORM}, \text{Form})\}$
$\delta(\text{TDATA}, \text{style}, \text{ODat}) = \{(\text{TDATA}, \text{OStyle ODat})\}$	$\delta(\text{BR}, \text{class}, \text{OBr}) = \{(\text{BR}, \text{OClass OBr})\}$
$\delta(\text{TDATA}, =, \text{OStyle}) = \{(\text{TDATA}, \text{EStyle})\}$	$\delta(\text{BR}, =, \text{OClass}) = \{(\text{BR}, \text{EClass})\}$
$\delta(\text{TDATA}, ", \text{EStyle}) = \{(\text{TDATA}, \text{OASStyle})\}$	$\delta(\text{BR}, ", \text{EClass}) = \{(\text{BR}, \text{OAClass})\}$
$\delta(\text{TDATA}, ", \text{OASStyle}) = \{(\text{TDATA}, \varepsilon)\}$	$\delta(\text{BR}, ", \text{OAClass}) = \{(\text{BR}, \varepsilon)\}$
$\delta(\text{TDATA}, >, \text{ODat}) = \{(\text{TDATA}, \text{Dat})\}$	$\delta(\text{BR}, \text{id}, \text{OBr}) = \{(\text{BR}, \text{OId OBr})\}$
$\delta(\text{TDATA}, x, \text{Dat}) = \{(\text{TDATA}, \text{Dat})\}$	$\delta(\text{BR}, =, \text{OId}) = \{(\text{BR}, \text{EId})\}$
$\delta(\text{TDATA}, \text{STR}, \text{Dat}) = \{(\text{TDATA}, \text{Dat})\}$	$\delta(\text{BR}, ", \text{EId}) = \{(\text{BR}, \text{OAIId})\}$
$\delta(\text{TDATA}, <\text{em}, \text{Dat}) = \{(\text{EMP}, \text{OEm Dat})\}$	$\delta(\text{BR}, ", \text{OAIId}) = \{(\text{BR}, \varepsilon)\}$
$\delta(\text{TDATA}, <\text{b}, \text{Dat}) = \{(\text{BOLD}, \text{OBold Dat})\}$	$\delta(\text{BR}, \text{style}, \text{OBr}) = \{(\text{BR}, \text{OStyle OBr})\}$
$\delta(\text{TDATA}, <\text{abbr}, \text{Dat}) = \{(\text{ABBRI}, \text{OAbbr Dat})\}$	$\delta(\text{BR}, =, \text{OStyle}) = \{(\text{BR}, \text{EStyle})\}$
$\delta(\text{TDATA}, <\text{strong}, \text{Dat}) = \{(\text{STRG}, \text{OStrong Dat})\}$	$\delta(\text{BR}, ", \text{EStyle}) = \{(\text{BR}, \text{OASStyle})\}$
$\delta(\text{TDATA}, <\text{small}, \text{Dat}) = \{(\text{SML}, \text{OSmall Dat})\}$	$\delta(\text{BR}, ", \text{OASStyle}) = \{(\text{BR}, \varepsilon)\}$
$\delta(\text{TDATA}, <\text{!-}, \text{Dat}) = \{(\text{TDATA}, \text{OCom Dat})\}$	$\delta(\text{BR}, >, \text{OBr}) = \{(\text{BR}, \varepsilon)\}$
$\delta(\text{TDATA}, \text{-->, OCom}) = \{(\text{TDATA}, \varepsilon)\}$	$\delta(\text{BR}, x, \text{Bo}) = \{(\text{BODY}, \text{Bo})\}$
$\delta(\text{TDATA}, <\text{td}, \text{Dat}) = \{(\text{TDATA}, \text{CDat})\}$	$\delta(\text{BR}, x, \text{Div}) = \{(\text{DIVS}, \text{Div})\}$
$\delta(\text{TDATA}, >, \text{CDat}) = \{(\text{TDATA}, \varepsilon)\}$	$\delta(\text{BR}, x, \text{Form}) = \{(\text{FORM}, \text{Form})\}$

$\delta(\text{TDATA}, x, \text{Row}) = \{(\text{TROW}, \text{Row})\}$ $\delta(\text{HEADER}, \text{class}, \text{OTh}) = \{(\text{HEADER}, \text{OClass OTh})\}$ $\delta(\text{HEADER}, =, \text{OClass}) = \{(\text{HEADER}, \text{EClass})\}$ $\delta(\text{HEADER}, ", \text{EClass}) = \{(\text{HEADER}, \text{OAClass})\}$ $\delta(\text{HEADER}, ", \text{OAClass}) = \{(\text{HEADER}, \varepsilon)\}$ $\delta(\text{HEADER}, \text{id}, \text{OTh}) = \{(\text{HEADER}, \text{OId OTh})\}$ $\delta(\text{HEADER}, =, \text{OId}) = \{(\text{HEADER}, \text{EId})\}$ $\delta(\text{HEADER}, ", \text{EId}) = \{(\text{HEADER}, \text{OAIId})\}$ $\delta(\text{HEADER}, ", \text{OAIId}) = \{(\text{HEADER}, \varepsilon)\}$ $\delta(\text{HEADER}, \text{style}, \text{OTh}) = \{(\text{HEADER}, \text{OStyle OTh})\}$ $\delta(\text{HEADER}, =, \text{OStyle}) = \{(\text{HEADER}, \text{EStyle})\}$ $\delta(\text{HEADER}, ", \text{EStyle}) = \{(\text{HEADER}, \text{OASStyle})\}$ $\delta(\text{HEADER}, ", \text{OASStyle}) = \{(\text{HEADER}, \varepsilon)\}$ $\delta(\text{HEADER}, >, \text{OTh}) = \{(\text{HEADER}, \text{Th})\}$ $\delta(\text{HEADER}, x, \text{Th}) = \{(\text{HEADER}, \text{Th})\}$ $\delta(\text{HEADER}, \text{STR}, \text{Th}) = \{(\text{HEADER}, \text{Th})\}$ $\delta(\text{HEADER}, <\text{em}, \text{Th}) = \{(\text{EMP}, \text{OEm Th})\}$ $\delta(\text{HEADER}, <\text{b}, \text{Th}) = \{(\text{BOLD}, \text{OBold Th})\}$ $\delta(\text{HEADER}, <\text{abbr}, \text{Th}) = \{(\text{ABBRI}, \text{OAbbr Th})\}$ $\delta(\text{HEADER}, <\text{strong}, \text{Th}) = \{(\text{STRG}, \text{OStrong Th})\}$ $\delta(\text{HEADER}, <\text{small}, \text{Th}) = \{(\text{SML}, \text{OSmall Th})\}$ $\delta(\text{HEADER}, <!--, \text{Th}) = \{(\text{HEADER}, \text{OCom Th})\}$ $\delta(\text{HEADER}, -->, \text{OCom}) = \{(\text{HEADER}, \varepsilon)\}$ $\delta(\text{HEADER}, </\text{th}, \text{Th}) = \{(\text{HEADER}, \text{CTh})\}$ $\delta(\text{HEADER}, >, \text{CTh}) = \{(\text{HEADER}, \varepsilon)\}$ $\delta(\text{HEADER}, x, \text{Row}) = \{(\text{TROW}, \text{Row})\}$ $\delta(\text{HEADER}, x, \text{Div}) = \{(\text{DIVS}, \text{Div})\}$ $\delta(\text{INPUT}, \text{class}, \text{OInput}) = \{(\text{INPUT}, \text{OClass OInput})\}$ $\delta(\text{INPUT}, =, \text{OClass}) = \{(\text{INPUT}, \text{EClass})\}$ $\delta(\text{INPUT}, ", \text{EClass}) = \{(\text{INPUT}, \text{OAClass})\}$ $\delta(\text{INPUT}, ", \text{OAClass}) = \{(\text{INPUT}, \varepsilon)\}$ $\delta(\text{INPUT}, \text{id}, \text{OInput}) = \{(\text{INPUT}, \text{OId OInput})\}$ $\delta(\text{INPUT}, =, \text{OId}) = \{(\text{INPUT}, \text{EId})\}$ $\delta(\text{INPUT}, ", \text{EId}) = \{(\text{INPUT}, \text{OAIId})\}$ $\delta(\text{INPUT}, ", \text{OAIId}) = \{(\text{INPUT}, \varepsilon)\}$ $\delta(\text{INPUT}, \text{style}, \text{OInput}) = \{(\text{INPUT}, \text{OStyle OInput})\}$ $\delta(\text{INPUT}, =, \text{OStyle}) = \{(\text{INPUT}, \text{EStyle})\}$ $\delta(\text{INPUT}, ", \text{EStyle}) = \{(\text{INPUT}, \text{OASStyle})\}$ $\delta(\text{INPUT}, ", \text{OASStyle}) = \{(\text{INPUT}, \varepsilon)\}$ $\delta(\text{INPUT}, \text{type}, \text{OInput}) = \{(\text{INPUT}, \text{OType OInput})\}$ $\delta(\text{INPUT}, =, \text{OType}) = \{(\text{INPUT}, \text{EType})\}$ $\delta(\text{INPUT}, ", \text{EType}) = \{(\text{INPUT}, \text{OAType})\}$ $\delta(\text{INPUT}, \text{text}, \text{OAType}) = \{(\text{INPUT}, \text{FType})\}$ $\delta(\text{INPUT}, \text{password}, \text{OAType}) = \{(\text{INPUT}, \text{FType})\}$ $\delta(\text{INPUT}, \text{email}, \text{OAType}) = \{(\text{INPUT}, \text{FType})\}$ $\delta(\text{INPUT}, \text{number}, \text{OAType}) = \{(\text{INPUT}, \text{FType})\}$ $\delta(\text{INPUT}, \text{checkbox}, \text{OAType}) = \{(\text{INPUT}, \text{FType})\}$ $\delta(\text{INPUT}, ", \text{FType}) = \{(\text{INPUT}, \varepsilon)\}$ $\delta(\text{INPUT}, >, \text{OInput}) = \{(\text{INPUT}, \varepsilon)\}$	$\delta(\text{HEADERnP}, \text{class}, \text{OH1}) = \{(\text{HEADERnP}, \text{OClass OH1})\}$ $\delta(\text{HEADERnP}, \text{class}, \text{OH2}) = \{(\text{HEADERnP}, \text{OClass OH2})\}$ $\delta(\text{HEADERnP}, \text{class}, \text{OH3}) = \{(\text{HEADERnP}, \text{OClass OH3})\}$ $\delta(\text{HEADERnP}, \text{class}, \text{OH4}) = \{(\text{HEADERnP}, \text{OClass OH4})\}$ $\delta(\text{HEADERnP}, \text{class}, \text{OH5}) = \{(\text{HEADERnP}, \text{OClass OH5})\}$ $\delta(\text{HEADERnP}, \text{class}, \text{OH6}) = \{(\text{HEADERnP}, \text{OClass OH6})\}$ $\delta(\text{HEADERnP}, \text{class}, \text{OPar}) = \{(\text{HEADERnP}, \text{OClass OPar})\}$ $\delta(\text{HEADERnP}, =, \text{OClass}) = \{(\text{HEADERnP}, \text{EClass})\}$ $\delta(\text{HEADERnP}, ", \text{EClass}) = \{(\text{HEADERnP}, \text{OAClass})\}$ $\delta(\text{HEADERnP}, ", \text{OAClass}) = \{(\text{HEADERnP}, \varepsilon)\}$ $\delta(\text{HEADERnP}, \text{id}, \text{OH1}) = \{(\text{HEADERnP}, \text{OId OH1})\}$ $\delta(\text{HEADERnP}, \text{id}, \text{OH2}) = \{(\text{HEADERnP}, \text{OId OH2})\}$ $\delta(\text{HEADERnP}, \text{id}, \text{OH3}) = \{(\text{HEADERnP}, \text{OId OH3})\}$ $\delta(\text{HEADERnP}, \text{id}, \text{OH4}) = \{(\text{HEADERnP}, \text{OId OH4})\}$ $\delta(\text{HEADERnP}, \text{id}, \text{OH5}) = \{(\text{HEADERnP}, \text{OId OH5})\}$ $\delta(\text{HEADERnP}, \text{id}, \text{OH6}) = \{(\text{HEADERnP}, \text{OId OH6})\}$ $\delta(\text{HEADERnP}, \text{id}, \text{OPar}) = \{(\text{HEADERnP}, \text{OId OPar})\}$ $\delta(\text{HEADERnP}, =, \text{OId}) = \{(\text{HEADERnP}, \text{EId})\}$ $\delta(\text{HEADERnP}, ", \text{EId}) = \{(\text{HEADERnP}, \text{OAIId})\}$ $\delta(\text{HEADERnP}, ", \text{OAIId}) = \{(\text{HEADERnP}, \varepsilon)\}$ $\delta(\text{HEADERnP}, \text{style}, \text{OH1}) = \{(\text{HEADERnP}, \text{OStyle OH1})\}$ $\delta(\text{HEADERnP}, \text{style}, \text{OH2}) = \{(\text{HEADERnP}, \text{OStyle OH2})\}$ $\delta(\text{HEADERnP}, \text{style}, \text{OH3}) = \{(\text{HEADERnP}, \text{OStyle OH3})\}$ $\delta(\text{HEADERnP}, \text{style}, \text{OH4}) = \{(\text{HEADERnP}, \text{OStyle OH4})\}$ $\delta(\text{HEADERnP}, \text{style}, \text{OH5}) = \{(\text{HEADERnP}, \text{OStyle OH5})\}$ $\delta(\text{HEADERnP}, \text{style}, \text{OH6}) = \{(\text{HEADERnP}, \text{OStyle OH6})\}$ $\delta(\text{HEADERnP}, \text{style}, \text{OPar}) = \{(\text{HEADERnP}, \text{OStyle OPar})\}$ $\delta(\text{HEADERnP}, =, \text{OStyle}) = \{(\text{HEADERnP}, \text{EStyle})\}$ $\delta(\text{HEADERnP}, ", \text{EStyle}) = \{(\text{HEADERnP}, \text{OASStyle})\}$ $\delta(\text{HEADERnP}, ", \text{OASStyle}) = \{(\text{HEADERnP}, \varepsilon)\}$ $\delta(\text{HEADERnP}, >, \text{OH1}) = \{(\text{HEADERnP}, \text{H1})\}$ $\delta(\text{HEADERnP}, >, \text{OH2}) = \{(\text{HEADERnP}, \text{H2})\}$ $\delta(\text{HEADERnP}, >, \text{OH3}) = \{(\text{HEADERnP}, \text{H3})\}$ $\delta(\text{HEADERnP}, >, \text{OH4}) = \{(\text{HEADERnP}, \text{H4})\}$ $\delta(\text{HEADERnP}, >, \text{OH5}) = \{(\text{HEADERnP}, \text{H5})\}$
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$\delta(\text{INPUT}, x, \text{Bo}) = \{(\text{BODY}, \text{Bo})\}$ $\delta(\text{INPUT}, x, \text{Div}) = \{(\text{DIVS}, \text{Div})\}$ $\delta(\text{INPUT}, x, \text{Form}) = \{(\text{FORM}, \text{Form})\}$ $\delta(\text{FORM}, \text{class}, \text{OForm}) = \{(\text{FORM}, \text{OClass OForm})\}$ $\delta(\text{FORM}, =, \text{OClass}) = \{(\text{FORM}, \text{EClass})\}$ $\delta(\text{FORM}, ", \text{EClass}) = \{(\text{FORM}, \text{OAClass})\}$ $\delta(\text{FORM}, ", \text{OAClass}) = \{(\text{FORM}, \varepsilon)\}$ $\delta(\text{FORM}, \text{id}, \text{OForm}) = \{(\text{FORM}, \text{Old OForm})\}$ $\delta(\text{FORM}, =, \text{Old}) = \{(\text{FORM}, \text{Eld})\}$ $\delta(\text{FORM}, ", \text{Eld}) = \{(\text{FORM}, \text{OAlid})\}$ $\delta(\text{FORM}, ", \text{OAlid}) = \{(\text{FORM}, \varepsilon)\}$ $\delta(\text{FORM}, \text{style}, \text{OForm}) = \{(\text{FORM}, \text{OStyle OForm})\}$ $\delta(\text{FORM}, =, \text{OStyle}) = \{(\text{FORM}, \text{EStyle})\}$ $\delta(\text{FORM}, ", \text{EStyle}) = \{(\text{FORM}, \text{OASStyle})\}$ $\delta(\text{FORM}, ", \text{OASStyle}) = \{(\text{FORM}, \varepsilon)\}$ $\delta(\text{FORM}, \text{action}, \text{OForm}) = \{(\text{FORM}, \text{OAction OForm})\}$ $\delta(\text{FORM}, =, \text{OAction}) = \{(\text{FORM}, \text{EAction})\}$ $\delta(\text{FORM}, ", \text{EAction}) = \{(\text{FORM}, \text{OAAction})\}$ $\delta(\text{FORM}, ", \text{OAAction}) = \{(\text{FORM}, \varepsilon)\}$ $\delta(\text{FORM}, \text{method}, \text{OForm}) = \{(\text{FORM}, \text{OMethod OForm})\}$ $\delta(\text{FORM}, =, \text{OMethod}) = \{(\text{FORM}, \text{EMethod})\}$ $\delta(\text{FORM}, ", \text{EMethod}) = \{(\text{FORM}, \text{OAMethod})\}$ $\delta(\text{FORM}, \text{get}, \text{OAMethod}) = \{(\text{FORM}, \text{FMethod})\}$ $\delta(\text{FORM}, \text{post}, \text{OAMethod}) = \{(\text{FORM}, \text{FMethod})\}$ $\delta(\text{FORM}, ", \text{FMethod}) = \{(\text{FORM}, \varepsilon)\}$ $\delta(\text{FORM}, >, \text{OForm}) = \{(\text{FORM}, \text{Form})\}$ $\delta(\text{FORM}, x, \text{Form}) = \{(\text{FORM}, \text{Form})\}$ $\delta(\text{FORM}, \text{STR}, \text{Form}) = \{(\text{FORM}, \text{Form})\}$ $\delta(\text{FORM}, <\text{em}, \text{Form}) = \{(\text{EMP}, \text{OEm Form})\}$ $\delta(\text{FORM}, <\text{b}, \text{Form}) = \{(\text{BOLD}, \text{OBold Form})\}$ $\delta(\text{FORM}, <\text{abbr}, \text{Form}) = \{(\text{ABBRI}, \text{OAbbr Form})\}$ $\delta(\text{FORM}, <\text{strong}, \text{Form}) = \{(\text{STRG}, \text{OStrong Form})\}$ $\delta(\text{FORM}, <\text{small}, \text{Form}) = \{(\text{SML}, \text{OSmall Form})\}$ $\delta(\text{FORM}, <\text{link}, \text{Form}) = \{(\text{LINK}, \text{OLi Form})\}$ $\delta(\text{FORM}, <\text{script}, \text{Form}) = \{(\text{SCRIPT}, \text{OSc Form})\}$ $\delta(\text{FORM}, <\text{h1}, \text{Form}) = \{(\text{HEADERnP}, \text{OH1 Form})\}$ $\delta(\text{FORM}, <\text{h2}, \text{Form}) = \{(\text{HEADERnP}, \text{OH2 Form})\}$ $\delta(\text{FORM}, <\text{h3}, \text{Form}) = \{(\text{HEADERnP}, \text{OH3 Form})\}$ $\delta(\text{FORM}, <\text{h4}, \text{Form}) = \{(\text{HEADERnP}, \text{OH4 Form})\}$ $\delta(\text{FORM}, <\text{h5}, \text{Form}) = \{(\text{HEADERnP}, \text{OH5 Form})\}$ $\delta(\text{FORM}, <\text{h6}, \text{Form}) = \{(\text{HEADERnP}, \text{OH6 Form})\}$ $\delta(\text{FORM}, <\text{p}, \text{Form}) = \{(\text{HEADERnP}, \text{OPar Form})\}$ $\delta(\text{FORM}, <\text{br}, \text{Form}) = \{(\text{BR}, \text{OBr Form})\}$ $\delta(\text{FORM}, <\text{hr}, \text{Form}) = \{(\text{BR}, \text{OBr Form})\}$ $\delta(\text{FORM}, <\text{a}, \text{Form}) = \{(\text{ANCHOR}, \text{OA Form})\}$ $\delta(\text{FORM}, <\text{img}, \text{Form}) = \{(\text{IMAGE}, \text{OImg Form})\}$ $\delta(\text{FORM}, <\text{button}, \text{Form}) = \{(\text{BTN}, \text{OBut Form})\}$ $\delta(\text{FORM}, <\text{input}, \text{Form}) = \{(\text{INPUT}, \text{OInput Form})\}$	$\delta(\text{HEADERnP}, >, \text{OH6}) = \{(\text{HEADERnP}, \text{H6})\}$ $\delta(\text{HEADERnP}, >, \text{OPar}) = \{(\text{HEADERnP}, \text{Par})\}$ $\delta(\text{HEADERnP}, x, \text{H1}) = \{(\text{HEADERnP}, \text{H1})\}$ $\delta(\text{HEADERnP}, x, \text{H2}) = \{(\text{HEADERnP}, \text{H2})\}$ $\delta(\text{HEADERnP}, x, \text{H3}) = \{(\text{HEADERnP}, \text{H3})\}$ $\delta(\text{HEADERnP}, x, \text{H4}) = \{(\text{HEADERnP}, \text{H4})\}$ $\delta(\text{HEADERnP}, x, \text{H5}) = \{(\text{HEADERnP}, \text{H5})\}$ $\delta(\text{HEADERnP}, x, \text{H6}) = \{(\text{HEADERnP}, \text{H6})\}$ $\delta(\text{HEADERnP}, x, \text{Par}) = \{(\text{HEADERnP}, \text{Par})\}$ $\delta(\text{HEADERnP}, \text{STR}, \text{H1}) = \{(\text{HEADERnP}, \text{H1})\}$ $\delta(\text{HEADERnP}, \text{STR}, \text{H2}) = \{(\text{HEADERnP}, \text{H2})\}$ $\delta(\text{HEADERnP}, \text{STR}, \text{H3}) = \{(\text{HEADERnP}, \text{H3})\}$ $\delta(\text{HEADERnP}, \text{STR}, \text{H4}) = \{(\text{HEADERnP}, \text{H4})\}$ $\delta(\text{HEADERnP}, \text{STR}, \text{H5}) = \{(\text{HEADERnP}, \text{H5})\}$ $\delta(\text{HEADERnP}, \text{STR}, \text{H6}) = \{(\text{HEADERnP}, \text{H6})\}$ $\delta(\text{HEADERnP}, \text{STR}, \text{Par}) = \{(\text{HEADERnP}, \text{Par})\}$ $\delta(\text{HEADERnP}, <\text{em}, \text{H1}) = \{(\text{EMP}, \text{OEm H1})\}$ $\delta(\text{HEADERnP}, <\text{b}, \text{H1}) = \{(\text{BOLD}, \text{OBold H1})\}$ $\delta(\text{HEADERnP}, <\text{abbr}, \text{H1}) = \{(\text{ABBRI}, \text{OAbbr H1})\}$ $\delta(\text{HEADERnP}, <\text{strong}, \text{H1}) = \{(\text{STRG}, \text{OStrong H1})\}$ $\delta(\text{HEADERnP}, <\text{small}, \text{H1}) = \{(\text{SML}, \text{OSmall H1})\}$ $\delta(\text{HEADERnP}, <\text{em}, \text{H2}) = \{(\text{EMP}, \text{OEm H2})\}$ $\delta(\text{HEADERnP}, <\text{b}, \text{H2}) = \{(\text{BOLD}, \text{OBold H2})\}$ $\delta(\text{HEADERnP}, <\text{abbr}, \text{H2}) = \{(\text{ABBRI}, \text{OAbbr H2})\}$ $\delta(\text{HEADERnP}, <\text{strong}, \text{H2}) = \{(\text{STRG}, \text{OStrong H2})\}$ $\delta(\text{HEADERnP}, <\text{small}, \text{H2}) = \{(\text{SML}, \text{OSmall H2})\}$ $\delta(\text{HEADERnP}, <\text{em}, \text{H3}) = \{(\text{EMP}, \text{OEm H3})\}$ $\delta(\text{HEADERnP}, <\text{b}, \text{H3}) = \{(\text{BOLD}, \text{OBold H3})\}$ $\delta(\text{HEADERnP}, <\text{abbr}, \text{H3}) = \{(\text{ABBRI}, \text{OAbbr H3})\}$ $\delta(\text{HEADERnP}, <\text{strong}, \text{H3}) = \{(\text{STRG}, \text{OStrong H3})\}$ $\delta(\text{HEADERnP}, <\text{small}, \text{H3}) = \{(\text{SML}, \text{OSmall H3})\}$ $\delta(\text{HEADERnP}, <\text{em}, \text{H4}) = \{(\text{EMP}, \text{OEm H4})\}$ $\delta(\text{HEADERnP}, <\text{b}, \text{H4}) = \{(\text{BOLD}, \text{OBold H4})\}$ $\delta(\text{HEADERnP}, <\text{abbr}, \text{H4}) = \{(\text{ABBRI}, \text{OAbbr H4})\}$ $\delta(\text{HEADERnP}, <\text{strong}, \text{H4}) = \{(\text{STRG}, \text{OStrong H4})\}$ $\delta(\text{HEADERnP}, <\text{small}, \text{H4}) = \{(\text{SML}, \text{OSmall H4})\}$ $\delta(\text{HEADERnP}, <\text{em}, \text{H5}) = \{(\text{EMP}, \text{OEm H5})\}$ $\delta(\text{HEADERnP}, <\text{b}, \text{H5}) = \{(\text{BOLD}, \text{OBold H5})\}$ $\delta(\text{HEADERnP}, <\text{abbr}, \text{H5}) = \{(\text{ABBRI}, \text{OAbbr H5})\}$ $\delta(\text{HEADERnP}, <\text{strong}, \text{H5}) = \{(\text{STRG}, \text{OStrong H5})\}$ $\delta(\text{HEADERnP}, <\text{small}, \text{H5}) = \{(\text{SML}, \text{OSmall H5})\}$ $\delta(\text{HEADERnP}, <\text{em}, \text{H6}) = \{(\text{EMP}, \text{OEm H6})\}$ $\delta(\text{HEADERnP}, <\text{b}, \text{H6}) = \{(\text{BOLD}, \text{OBold H6})\}$ $\delta(\text{HEADERnP}, <\text{abbr}, \text{H6}) = \{(\text{ABBRI}, \text{OAbbr H6})\}$ $\delta(\text{HEADERnP}, <\text{strong}, \text{H6}) = \{(\text{STRG}, \text{OStrong H6})\}$ $\delta(\text{HEADERnP}, <\text{small}, \text{H6}) = \{(\text{SML}, \text{OSmall H6})\}$ $\delta(\text{HEADERnP}, <\text{em}, \text{Par}) = \{(\text{EMP}, \text{OEm Par})\}$ $\delta(\text{HEADERnP}, <\text{b}, \text{Par}) = \{(\text{BOLD}, \text{OBold Par})\}$ $\delta(\text{HEADERnP}, <\text{abbr}, \text{Par}) = \{(\text{ABBRI}, \text{OAbbr Par})\}$
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$\delta(\text{FORM}, \text{<table, Form}) = \{(\text{TABLE}, \text{OTable Form})\}$	$\delta(\text{HEADERnP}, \text{<strong, Par}) = \{(\text{STRG}, \text{OStrong Par})\}$
$\delta(\text{FORM}, \text{<div, Form}) = \{(\text{DIVS}, \text{ODiv Form})\}$	$\delta(\text{HEADERnP}, \text{<small, Par}) = \{(\text{SML}, \text{OSmall Par})\}$
$\delta(\text{FORM}, \text{<!--, Form}) = \{(\text{FORM}, \text{OCom Form})\}$	$\delta(\text{HEADERnP}, \text{<!--, H1}) = \{(\text{HEADERnP}, \text{OCom H1})\}$
$\delta(\text{FORM}, \text{-->, OCom}) = \{(\text{FORM}, \varepsilon)\}$	$\delta(\text{HEADERnP}, \text{<!--, H2}) = \{(\text{HEADERnP}, \text{OCom H2})\}$
$\delta(\text{FORM}, \text{</form, Form}) = \{(\text{FORM}, \text{CForm})\}$	$\delta(\text{HEADERnP}, \text{<!--, H3}) = \{(\text{HEADERnP}, \text{OCom H3})\}$
$\delta(\text{FORM}, \text{>, CForm}) = \{(\text{FORM}, \varepsilon)\}$	$\delta(\text{HEADERnP}, \text{<!--, H4}) = \{(\text{HEADERnP}, \text{OCom H4})\}$
$\delta(\text{FORM}, \text{x, Bo}) = \{(\text{BODY}, \text{Bo})\}$	$\delta(\text{HEADERnP}, \text{<!--, H5}) = \{(\text{HEADERnP}, \text{OCom H5})\}$
$\delta(\text{FORM}, \text{x, Div}) = \{(\text{DIVS}, \text{Div})\}$	$\delta(\text{HEADERnP}, \text{<!--, H6}) = \{(\text{HEADERnP}, \text{OCom H6})\}$
$\delta(\text{BTN}, \text{class, OBut}) = \{(\text{BTN}, \text{OClass OBut})\}$	$\delta(\text{HEADERnP}, \text{<!--, Par}) = \{(\text{HEADERnP}, \text{OCom Par})\}$
$\delta(\text{BTN}, \text{=, OClass}) = \{(\text{BTN}, \text{EClass})\}$	$\delta(\text{HEADERnP}, \text{-->, OCom}) = \{(\text{HEADERnP}, \varepsilon)\}$
$\delta(\text{BTN}, \text{"}, \text{EClass}) = \{(\text{BTN}, \text{OAClass})\}$	$\delta(\text{HEADERnP}, \text{</h1, H1}) = \{(\text{HEADERnP}, \text{CH})\}$
$\delta(\text{BTN}, \text{"}, \text{OAClass}) = \{(\text{BTN}, \varepsilon)\}$	$\delta(\text{HEADERnP}, \text{</h2, H2}) = \{(\text{HEADERnP}, \text{CH})\}$
$\delta(\text{BTN}, \text{id, OBut}) = \{(\text{BTN}, \text{Old OBut})\}$	$\delta(\text{HEADERnP}, \text{</h3, H3}) = \{(\text{HEADERnP}, \text{CH})\}$
$\delta(\text{BTN}, \text{=, Old}) = \{(\text{BTN}, \text{EId})\}$	$\delta(\text{HEADERnP}, \text{</h4, H4}) = \{(\text{HEADERnP}, \text{CH})\}$
$\delta(\text{BTN}, \text{"}, \text{EId}) = \{(\text{BTN}, \text{OAIId})\}$	$\delta(\text{HEADERnP}, \text{</h5, H5}) = \{(\text{HEADERnP}, \text{CH})\}$
$\delta(\text{BTN}, \text{"}, \text{OAIId}) = \{(\text{BTN}, \varepsilon)\}$	$\delta(\text{HEADERnP}, \text{</h6, H6}) = \{(\text{HEADERnP}, \text{CH})\}$
$\delta(\text{BTN}, \text{style, OBut}) = \{(\text{BTN}, \text{OStyle OBut})\}$	$\delta(\text{HEADERnP}, \text{<p, Par}) = \{(\text{HEADERnP}, \text{CH})\}$
$\delta(\text{BTN}, \text{=, OStyle}) = \{(\text{BTN}, \text{EStyle})\}$	$\delta(\text{HEADERnP}, \text{>, CH}) = \{(\text{HEADERnP}, \varepsilon)\}$
$\delta(\text{BTN}, \text{"}, \text{EStyle}) = \{(\text{BTN}, \text{OASStyle})\}$	$\delta(\text{HEADERnP}, \text{x, Bo}) = \{(\text{BODY}, \text{Bo})\}$
$\delta(\text{BTN}, \text{"}, \text{OASStyle}) = \{(\text{BTN}, \varepsilon)\}$	$\delta(\text{HEADERnP}, \text{x, Div}) = \{(\text{DIVS}, \text{Div})\}$
$\delta(\text{BTN}, \text{type, OBut}) = \{(\text{BTN}, \text{OType OBut})\}$	$\delta(\text{HEADERnP}, \text{x, Form}) = \{(\text{FORM}, \text{Form})\}$
$\delta(\text{BTN}, \text{=, OType}) = \{(\text{BTN}, \text{EType})\}$	$\delta(\text{LINK}, \text{rel, OLi}) = \{(\text{LINK}, \text{ORel})\}$
$\delta(\text{BTN}, \text{"}, \text{EType}) = \{(\text{BTN}, \text{OAType})\}$	$\delta(\text{LINK}, \text{=, ORel}) = \{(\text{LINK}, \text{ERel})\}$
$\delta(\text{BTN}, \text{submit, OAType}) = \{(\text{BTN}, \text{FType})\}$	$\delta(\text{LINK}, \text{"}, \text{ERel}) = \{(\text{LINK}, \text{OARel})\}$
$\delta(\text{BTN}, \text{reset, OAType}) = \{(\text{BTN}, \text{FType})\}$	$\delta(\text{LINK}, \text{"}, \text{OARel}) = \{(\text{LINK}, \text{CRel})\}$
$\delta(\text{BTN}, \text{button, OAType}) = \{(\text{BTN}, \text{FType})\}$	$\delta(\text{LINK}, \text{href, OLi}) = \{(\text{LINK}, \text{OHref OLi})\}$
$\delta(\text{BTN}, \text{"}, \text{FType}) = \{(\text{BTN}, \varepsilon)\}$	$\delta(\text{LINK}, \text{href, CRel}) = \{(\text{LINK}, \text{OHref CRel})\}$
$\delta(\text{BTN}, \text{>, OBut}) = \{(\text{BTN}, \text{But})\}$	$\delta(\text{LINK}, \text{=, OHref}) = \{(\text{LINK}, \text{EHref})\}$
$\delta(\text{BTN}, \text{x, But}) = \{(\text{BTN}, \text{But})\}$	$\delta(\text{LINK}, \text{"}, \text{EHref}) = \{(\text{LINK}, \text{OAHref})\}$
$\delta(\text{BTN}, \text{STR, But}) = \{(\text{BTN}, \text{But})\}$	$\delta(\text{LINK}, \text{"}, \text{OAHref}) = \{(\text{LINK}, \varepsilon)\}$
$\delta(\text{BTN}, \text{<em, But}) = \{(\text{EMP}, \text{OEm But})\}$	$\delta(\text{LINK}, \text{class, OLi}) = \{(\text{LINK}, \text{OClass OLi})\}$
$\delta(\text{BTN}, \text{<b, But}) = \{(\text{BOLD}, \text{OBold But})\}$	$\delta(\text{LINK}, \text{class, CRel}) = \{(\text{LINK}, \text{OClass CRel})\}$
$\delta(\text{BTN}, \text{<abbr, But}) = \{(\text{ABBRI}, \text{OAbbr But})\}$	$\delta(\text{LINK}, \text{=, OClass}) = \{(\text{LINK}, \text{EClass})\}$
$\delta(\text{BTN}, \text{<strong, But}) = \{(\text{STRG}, \text{OStrong But})\}$	$\delta(\text{LINK}, \text{"}, \text{EClass}) = \{(\text{LINK}, \text{OAClass})\}$
$\delta(\text{BTN}, \text{<small, But}) = \{(\text{SML}, \text{OSmall But})\}$	$\delta(\text{LINK}, \text{"}, \text{OAClass}) = \{(\text{LINK}, \varepsilon)\}$
$\delta(\text{BTN}, \text{<!--, But}) = \{(\text{BTN}, \text{OCom But})\}$	$\delta(\text{LINK}, \text{id, OLi}) = \{(\text{LINK}, \text{Old OLi})\}$
$\delta(\text{BTN}, \text{-->, OCom}) = \{(\text{BTN}, \varepsilon)\}$	$\delta(\text{LINK}, \text{id, CRel}) = \{(\text{LINK}, \text{Old CRel})\}$
$\delta(\text{BTN}, \text{</button, But}) = \{(\text{BTN}, \text{CBut})\}$	$\delta(\text{LINK}, \text{=, Old}) = \{(\text{LINK}, \text{EId})\}$
$\delta(\text{BTN}, \text{>, CBut}) = \{(\text{BTN}, \varepsilon)\}$	$\delta(\text{LINK}, \text{"}, \text{EId}) = \{(\text{LINK}, \text{OAIId})\}$
$\delta(\text{BTN}, \text{x, Bo}) = \{(\text{BODY}, \text{Bo})\}$	$\delta(\text{LINK}, \text{"}, \text{OAIId}) = \{(\text{LINK}, \varepsilon)\}$
$\delta(\text{BTN}, \text{x, Div}) = \{(\text{DIVS}, \text{Div})\}$	$\delta(\text{LINK}, \text{style, OLi}) = \{(\text{LINK}, \text{OStyle OLi})\}$
$\delta(\text{BTN}, \text{x, Form}) = \{(\text{FORM}, \text{Form})\}$	$\delta(\text{LINK}, \text{style, CRel}) = \{(\text{LINK}, \text{OStyle CRel})\}$
$\delta(\text{EMP}, \text{class, OEm}) = \{(\text{EMP}, \text{OClass OEm})\}$	$\delta(\text{LINK}, \text{=, OStyle}) = \{(\text{LINK}, \text{EStyle})\}$
$\delta(\text{EMP}, \text{=, OClass}) = \{(\text{EMP}, \text{EClass})\}$	$\delta(\text{LINK}, \text{"}, \text{EStyle}) = \{(\text{LINK}, \text{OASStyle})\}$
$\delta(\text{EMP}, \text{"}, \text{EClass}) = \{(\text{EMP}, \text{OAClass})\}$	$\delta(\text{LINK}, \text{"}, \text{OASStyle}) = \{(\text{LINK}, \varepsilon)\}$
$\delta(\text{EMP}, \text{"}, \text{OAClass}) = \{(\text{EMP}, \varepsilon)\}$	$\delta(\text{LINK}, \text{>, CRel}) = \{(\text{LINK}, \varepsilon)\}$
$\delta(\text{EMP}, \text{id, OEm}) = \{(\text{EMP}, \text{Old OEm})\}$	$\delta(\text{LINK}, \text{x, He}) = \{(\text{HEAD}, \text{He})\}$
$\delta(\text{EMP}, \text{=, Old}) = \{(\text{EMP}, \text{EId})\}$	$\delta(\text{LINK}, \text{x, Bo}) = \{(\text{BODY}, \text{Bo})\}$
$\delta(\text{EMP}, \text{"}, \text{EId}) = \{(\text{EMP}, \text{OAIId})\}$	$\delta(\text{LINK}, \text{x, Div}) = \{(\text{DIVS}, \text{Div})\}$

$\delta(\text{EMP}, "", \text{OAid}) = \{(\text{EMP}, \varepsilon)\}$	$\delta(\text{LINK}, x, \text{Form}) = \{(\text{FORM}, \text{Form})\}$
$\delta(\text{EMP}, \text{style}, \text{OEm}) = \{(\text{EMP}, \text{OStyle OEm})\}$	$\delta(\text{SCRIPT}, \text{src}, \text{OSc}) = \{(\text{SCRIPT}, \text{OSr OSc})\}$
$\delta(\text{EMP}, =, \text{OStyle}) = \{(\text{EMP}, \text{EStyle})\}$	$\delta(\text{SCRIPT}, =, \text{OSr}) = \{(\text{SCRIPT}, \text{ESr})\}$
$\delta(\text{EMP}, "", \text{EStyle}) = \{(\text{EMP}, \text{OASStyle})\}$	$\delta(\text{SCRIPT}, "", \text{ESr}) = \{(\text{SCRIPT}, \text{OASr})\}$
$\delta(\text{EMP}, "", \text{OASStyle}) = \{(\text{EMP}, \varepsilon)\}$	$\delta(\text{SCRIPT}, "", \text{OASr}) = \{(\text{SCRIPT}, \varepsilon)\}$
$\delta(\text{EMP}, >, \text{OEm}) = \{(\text{EMP}, \text{Em})\}$	$\delta(\text{SCRIPT}, \text{class}, \text{OSc}) = \{(\text{SCRIPT}, \text{OClass OSc})\}$
$\delta(\text{EMP}, x, \text{Em}) = \{(\text{EMP}, \text{Em})\}$	$\delta(\text{SCRIPT}, =, \text{OClass}) = \{(\text{SCRIPT}, \text{EClass})\}$
$\delta(\text{EMP}, \text{STR}, \text{Em}) = \{(\text{EMP}, \text{Em})\}$	$\delta(\text{SCRIPT}, "", \text{EClass}) = \{(\text{SCRIPT}, \text{OAClass})\}$
$\delta(\text{EMP}, <!--, \text{Em}) = \{(\text{EMP}, \text{OCom Em})\}$	$\delta(\text{SCRIPT}, "", \text{OAClass}) = \{(\text{SCRIPT}, \varepsilon)\}$
$\delta(\text{EMP}, -->, \text{OCom}) = \{(\text{EMP}, \varepsilon)\}$	$\delta(\text{SCRIPT}, \text{id}, \text{OSc}) = \{(\text{SCRIPT}, \text{Old OSc})\}$
$\delta(\text{EMP}, </em, \text{Em}) = \{(\text{EMP}, \text{CEm})\}$	$\delta(\text{SCRIPT}, =, \text{Old}) = \{(\text{SCRIPT}, \text{EId})\}$
$\delta(\text{EMP}, >, \text{CEm}) = \{(\text{EMP}, \varepsilon)\}$	$\delta(\text{SCRIPT}, "", \text{EId}) = \{(\text{SCRIPT}, \text{OAId})\}$
$\delta(\text{EMP}, x, \text{Bo}) = \{(\text{BODY}, \text{Bo})\}$	$\delta(\text{SCRIPT}, "", \text{OAId}) = \{(\text{SCRIPT}, \varepsilon)\}$
$\delta(\text{EMP}, x, \text{Div}) = \{(\text{DIVS}, \text{Div})\}$	$\delta(\text{SCRIPT}, \text{style}, \text{OSc}) = \{(\text{SCRIPT}, \text{OStyle OSc})\}$
$\delta(\text{EMP}, x, \text{H1}) = \{(\text{HEADERnP}, \text{H1})\}$	$\delta(\text{SCRIPT}, =, \text{OStyle}) = \{(\text{SCRIPT}, \text{EStyle})\}$
$\delta(\text{EMP}, x, \text{H2}) = \{(\text{HEADERnP}, \text{H2})\}$	$\delta(\text{SCRIPT}, "", \text{EStyle}) = \{(\text{SCRIPT}, \text{OASStyle})\}$
$\delta(\text{EMP}, x, \text{H3}) = \{(\text{HEADERnP}, \text{H3})\}$	$\delta(\text{SCRIPT}, "", \text{OASStyle}) = \{(\text{SCRIPT}, \varepsilon)\}$
$\delta(\text{EMP}, x, \text{H4}) = \{(\text{HEADERnP}, \text{H4})\}$	$\delta(\text{SCRIPT}, >, \text{OSc}) = \{(\text{SCRIPT}, \text{Sc})\}$
$\delta(\text{EMP}, x, \text{H5}) = \{(\text{HEADERnP}, \text{H5})\}$	$\delta(\text{SCRIPT}, x, \text{Sc}) = \{(\text{SCRIPT}, \text{Sc})\}$
$\delta(\text{EMP}, x, \text{H6}) = \{(\text{HEADERnP}, \text{H6})\}$	$\delta(\text{SCRIPT}, \text{STR}, \text{Sc}) = \{(\text{SCRIPT}, \text{Sc})\}$
$\delta(\text{EMP}, x, \text{Par}) = \{(\text{HEADERnP}, \text{Par})\}$	$\delta(\text{SCRIPT}, <em, \text{Sc}) = \{(\text{EMP}, \text{OEm Sc})\}$
$\delta(\text{EMP}, x, \text{Table}) = \{(\text{TABLE}, \text{Table})\}$	$\delta(\text{SCRIPT}, <b, \text{Sc}) = \{(\text{BOLD}, \text{OBold Sc})\}$
$\delta(\text{EMP}, x, \text{Row}) = \{(\text{TROW}, \text{Row})\}$	$\delta(\text{SCRIPT}, <abbr, \text{Sc}) = \{(\text{ABBRI}, \text{OAbbr Sc})\}$
$\delta(\text{EMP}, x, \text{Dat}) = \{(\text{TDATA}, \text{Dat})\}$	$\delta(\text{SCRIPT}, <strong, \text{Sc}) = \{(\text{STRG}, \text{Ostrong Sc})\}$
$\delta(\text{EMP}, x, \text{Th}) = \{(\text{THEADER}, \text{Th})\}$	$\delta(\text{SCRIPT}, <small, \text{Sc}) = \{(\text{SML}, \text{OSmall Sc})\}$
$\delta(\text{EMP}, x, \text{Form}) = \{(\text{FORM}, \text{Form})\}$	$\delta(\text{SCRIPT}, <!--, \text{Sc}) = \{(\text{SCRIPT}, \text{OCom Sc})\}$
$\delta(\text{EMP}, x, \text{But}) = \{(\text{BTN}, \text{But})\}$	$\delta(\text{SCRIPT}, -->, \text{OCom}) = \{(\text{SCRIPT}, \varepsilon)\}$
$\delta(\text{EMP}, x, \text{A}) = \{(\text{ANCHOR}, \text{A})\}$	$\delta(\text{SCRIPT}, </script, \text{Sc}) = \{(\text{SCRIPT}, \text{CSc})\}$
$\delta(\text{EMP}, x, \text{Sc}) = \{(\text{SCRIPT}, \text{Sc})\}$	$\delta(\text{SCRIPT}, >, \text{CSc}) = \{(\text{SCRIPT}, \varepsilon)\}$
$\delta(\text{BOLD}, \text{class}, \text{OBold}) = \{(\text{BOLD}, \text{OClass OBold})\}$	$\delta(\text{SCRIPT}, x, \text{He}) = \{(\text{HEAD}, \text{He})\}$
$\delta(\text{BOLD}, =, \text{OClass}) = \{(\text{BOLD}, \text{EClass})\}$	$\delta(\text{SCRIPT}, x, \text{Bo}) = \{(\text{BODY}, \text{Bo})\}$
$\delta(\text{BOLD}, "", \text{EClass}) = \{(\text{BOLD}, \text{OAClass})\}$	$\delta(\text{SCRIPT}, x, \text{Div}) = \{(\text{DIVS}, \text{Div})\}$
$\delta(\text{BOLD}, "", \text{OAClass}) = \{(\text{BOLD}, \varepsilon)\}$	$\delta(\text{SCRIPT}, x, \text{Form}) = \{(\text{FORM}, \text{Form})\}$
$\delta(\text{BOLD}, \text{id}, \text{OBold}) = \{(\text{BOLD}, \text{Old OBold})\}$	$\delta(\text{END}, >, \text{CHt}) = \{(\text{END}, \varepsilon)\}$
$\delta(\text{BOLD}, =, \text{Old}) = \{(\text{BOLD}, \text{EId})\}$	$\delta(\text{END}, x, \text{Z}) = \{(\text{END}, \text{Z})\}$
$\delta(\text{BOLD}, "", \text{EId}) = \{(\text{BOLD}, \text{OAId})\}$	$\delta(\text{END}, <!--, \text{Z}) = \{(\text{END}, \text{OCom Z})\}$
$\delta(\text{BOLD}, "", \text{OAId}) = \{(\text{BOLD}, \varepsilon)\}$	$\delta(\text{END}, -->, \text{OCom}) = \{(\text{END}, \varepsilon)\}$
$\delta(\text{BOLD}, \text{style}, \text{OBold}) = \{(\text{BOLD}, \text{OStyle OBold})\}$	$\delta(\text{DIVS}, \text{class}, \text{ODiv}) = \{(\text{DIVS}, \text{OClass ODiv})\}$
$\delta(\text{BOLD}, =, \text{OStyle}) = \{(\text{BOLD}, \text{EStyle})\}$	$\delta(\text{DIVS}, =, \text{OClass}) = \{(\text{DIVS}, \text{EClass})\}$
$\delta(\text{BOLD}, "", \text{EStyle}) = \{(\text{BOLD}, \text{OASStyle})\}$	$\delta(\text{DIVS}, "", \text{EClass}) = \{(\text{DIVS}, \text{OAClass})\}$
$\delta(\text{BOLD}, "", \text{OASStyle}) = \{(\text{BOLD}, \varepsilon)\}$	$\delta(\text{DIVS}, "", \text{OAClass}) = \{(\text{DIVS}, \varepsilon)\}$
$\delta(\text{BOLD}, >, \text{OBold}) = \{(\text{BOLD}, \text{Bold})\}$	$\delta(\text{DIVS}, \text{id}, \text{ODiv}) = \{(\text{DIVS}, \text{Old ODiv})\}$
$\delta(\text{BOLD}, x, \text{Bold}) = \{(\text{BOLD}, \text{Bold})\}$	$\delta(\text{DIVS}, =, \text{Old}) = \{(\text{DIVS}, \text{EId})\}$
$\delta(\text{BOLD}, \text{STR}, \text{Bold}) = \{(\text{BOLD}, \text{Bold})\}$	$\delta(\text{DIVS}, "", \text{EId}) = \{(\text{DIVS}, \text{OAId})\}$
$\delta(\text{BOLD}, <!--, \text{Bold}) = \{(\text{BOLD}, \text{OCom Bold})\}$	$\delta(\text{DIVS}, "", \text{OAId}) = \{(\text{DIVS}, \varepsilon)\}$
$\delta(\text{BOLD}, -->, \text{OCom}) = \{(\text{BOLD}, \varepsilon)\}$	$\delta(\text{DIVS}, \text{style}, \text{ODiv}) = \{(\text{DIVS}, \text{OStyle ODiv})\}$
$\delta(\text{BOLD}, <b, \text{Bold}) = \{(\text{BOLD}, \text{CBold})\}$	$\delta(\text{DIVS}, =, \text{OStyle}) = \{(\text{DIVS}, \text{EStyle})\}$
$\delta(\text{BOLD}, >, \text{CBold}) = \{(\text{BOLD}, \varepsilon)\}$	$\delta(\text{DIVS}, "", \text{EStyle}) = \{(\text{DIVS}, \text{OASStyle})\}$
$\delta(\text{BOLD}, x, \text{Bo}) = \{(\text{BODY}, \text{Bo})\}$	$\delta(\text{DIVS}, "", \text{OASStyle}) = \{(\text{DIVS}, \varepsilon)\}$

$\delta(\text{BOLD}, x, \text{Div}) = \{(\text{DIVS}, \text{Div})\}$ $\delta(\text{BOLD}, x, \text{H1}) = \{(\text{HEADERnP}, \text{H1})\}$ $\delta(\text{BOLD}, x, \text{H2}) = \{(\text{HEADERnP}, \text{H2})\}$ $\delta(\text{BOLD}, x, \text{H3}) = \{(\text{HEADERnP}, \text{H3})\}$ $\delta(\text{BOLD}, x, \text{H4}) = \{(\text{HEADERnP}, \text{H4})\}$ $\delta(\text{BOLD}, x, \text{H5}) = \{(\text{HEADERnP}, \text{H5})\}$ $\delta(\text{BOLD}, x, \text{H6}) = \{(\text{HEADERnP}, \text{H6})\}$ $\delta(\text{BOLD}, x, \text{Par}) = \{(\text{HEADERnP}, \text{Par})\}$ $\delta(\text{BOLD}, x, \text{Table}) = \{(\text{TABLE}, \text{Table})\}$ $\delta(\text{BOLD}, x, \text{Row}) = \{(\text{TROW}, \text{Row})\}$ $\delta(\text{BOLD}, x, \text{Dat}) = \{(\text{TDATA}, \text{Dat})\}$ $\delta(\text{BOLD}, x, \text{Th}) = \{(\text{THEADER}, \text{Th})\}$ $\delta(\text{BOLD}, x, \text{Form}) = \{(\text{FORM}, \text{Form})\}$ $\delta(\text{BOLD}, x, \text{But}) = \{(\text{BTN}, \text{But})\}$ $\delta(\text{BOLD}, x, \text{A}) = \{(\text{ANCHOR}, \text{A})\}$ $\delta(\text{BOLD}, x, \text{Sc}) = \{(\text{SCRIPT}, \text{Sc})\}$	$\delta(\text{DIVS}, >, \text{ODiv}) = \{(\text{DIVS}, \text{Div})\}$ $\delta(\text{DIVS}, x, \text{Div}) = \{(\text{DIVS}, \text{Div})\}$ $\delta(\text{DIVS}, \text{STR}, \text{Div}) = \{(\text{DIVS}, \text{Div})\}$ $\delta(\text{DIVS}, <!--, \text{Div}) = \{(\text{DIVS}, \text{OCom Div})\}$ $\delta(\text{DIVS}, -->, \text{OCom}) = \{(\text{DIVS}, \varepsilon)\}$ $\delta(\text{DIVS}, <\text{link}, \text{Div}) = \{(\text{LINK}, \text{OLi Div})\}$ $\delta(\text{DIVS}, <\text{script}, \text{Div}) = \{(\text{SCRIPT}, \text{OSc Div})\}$ $\delta(\text{DIVS}, <\text{h1}, \text{Div}) = \{(\text{HEADERnP}, \text{OH1 Div})\}$ $\delta(\text{DIVS}, <\text{h2}, \text{Div}) = \{(\text{HEADERnP}, \text{OH2 Div})\}$ $\delta(\text{DIVS}, <\text{h3}, \text{Div}) = \{(\text{HEADERnP}, \text{OH3 Div})\}$ $\delta(\text{DIVS}, <\text{h4}, \text{Div}) = \{(\text{HEADERnP}, \text{OH4 Div})\}$ $\delta(\text{DIVS}, <\text{h5}, \text{Div}) = \{(\text{HEADERnP}, \text{OH5 Div})\}$ $\delta(\text{DIVS}, <\text{h6}, \text{Div}) = \{(\text{HEADERnP}, \text{OH6 Div})\}$ $\delta(\text{DIVS}, <\text{p}, \text{Div}) = \{(\text{HEADERnP}, \text{OPar Div})\}$ $\delta(\text{DIVS}, <\text{br}, \text{Div}) = \{(\text{BR}, \text{OBr Div})\}$ $\delta(\text{DIVS}, <\text{hr}, \text{Div}) = \{(\text{BR}, \text{OBr Div})\}$ $\delta(\text{DIVS}, <\text{a}, \text{Div}) = \{(\text{ANCHOR}, \text{OA Div})\}$ $\delta(\text{DIVS}, <\text{img}, \text{Div}) = \{(\text{IMAGE}, \text{OImg Div})\}$ $\delta(\text{DIVS}, <\text{em}, \text{Div}) = \{(\text{EMP}, \text{OEm Div})\}$ $\delta(\text{DIVS}, <\text{b}, \text{Div}) = \{(\text{BOLD}, \text{OBold Div})\}$ $\delta(\text{DIVS}, <\text{abbr}, \text{Div}) = \{(\text{ABBRI}, \text{OAbbr Div})\}$ $\delta(\text{DIVS}, <\text{strong}, \text{Div}) = \{(\text{STRG}, \text{OStrong Div})\}$ $\delta(\text{DIVS}, <\text{small}, \text{Div}) = \{(\text{SML}, \text{OSmall Div})\}$ $\delta(\text{DIVS}, <\text{button}, \text{Div}) = \{(\text{BTN}, \text{OBut Div})\}$ $\delta(\text{DIVS}, <\text{form}, \text{Div}) = \{(\text{FORM}, \text{OForm Div})\}$ $\delta(\text{DIVS}, <\text{input}, \text{Div}) = \{(\text{INPUT}, \text{OInput Div})\}$ $\delta(\text{DIVS}, <\text{table}, \text{Div}) = \{(\text{TABLE}, \text{OTable Div})\}$ $\delta(\text{DIVS}, <\text{div}, \text{Div}) = \{(\text{DIVS}, \text{ODiv Div})\}$ $\delta(\text{DIVS}, </\text{div}, \text{Div}) = \{(\text{DIVS}, \text{CDiv})\}$ $\delta(\text{DIVS}, >, \text{CDiv}) = \{(\text{DIVS}, \varepsilon)\}$ $\delta(\text{DIVS}, x, \text{Bo}) = \{(\text{BODY}, \text{Bo})\}$ $\delta(\text{DIVS}, x, \text{Form}) = \{(\text{FORM}, \text{Form})\}$
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BAB III

IMPLEMENTASI DAN PENGUJIAN

3.1 Spesifikasi Teknis Program

3.1.1 Struktur Data yang Digunakan

Pada program ini, definisi PDA disimpan pada struktur data hashmap/dictionary. Sedangkan hasil tokenisasi dari file HTML disimpan pada suatu list. Tiap token sendiri merupakan suatu string. Berikut merupakan penjelasan lebih lanjut mengenai struktur data dari PDA,

STRUKTUR DATA PDA

Definisi type tiap value dari key

```
pda = {  
    'states' : list of string,  
    'input_symbols' : list of string,  
    'stack_symbols' : list of string,  
    'start_state' : string,  
    'start_stack_symbol' : string,  
    'final_states' : list of string,  
    'pda_type' : string,  
    'tf' : dictionary (penjelasan lebih lanjut di bawah)  
}
```

Struktur data dari value key 'tf' atau transition function

```
'tf': {  
    'state_x' : list of dictionary,  
    'state_y' : list of dictionary,  
    ...  
}
```

Struktur data dari list of dictionary

```
'state_x' : [  
    {  
        'input' : string,  
        'pop' : string,  
        'next_state' : string,  
        'push' : string
```

```
    },  
    ...  
]
```

3.1.2 Fungsi dan Prosedur yang Digunakan

Program terbagi menjadi tiga file Python, main.py, htmlparser.py, dan pdaparser.py. File main.py berisi program utama yang menerima argumen. File htmlparser.py berisi fungsi parse_html dan filter_tokens. File pdaparser.py berisi fungsi parse_pda, process, dan print_pda. Berikut merupakan spesifikasi dari fungsi dan prosedur yang digunakan tersebut,

FILE: pdaparser.py

```
def parse_pda(pda_path: str) -> dict
```

Fungsi ini membaca path atau nama file dimana definisi pda disimpan, lalu memprosesnya menjadi suatu hashmap/dictionary yang merupakan struktur data dari PDA.

```
def process(pda: dict, tokens: list, html_path: str)
```

Prosedur ini menerima pda yang merupakan suatu hashmap/dictionary, list tokens yang berisi token - token hasil parsing HTML dan juga path atau nama file dari file HTML yang dibaca. PDA akan direalisasikan menjadi suatu proses dalam prosedur ini. Setiap token dalam tokens akan diproses dalam PDA dan prosedur ini akan mencari kesalahan serta mengeluarkan kesalahannya berada dimana jika memang terdapat kesalahan.

```
def print_pda(pda: dict)
```

Prosedur ini menerima suatu PDA dan mencetak info - info dari PDA tersebut mulai dari state apa saja yang ada dalam PDA hingga transition function dari PDA tersebut. Fungsi ini digunakan dalam proses debugging dan testing.

FILE: htmlparser.py

```
def parse_html(html_path: str) -> list
```

Fungsi ini menerima path atau filename dari file HTML. Lalu file HTML tersebut akan diparse menjadi beberapa token sesuai dengan ketentuan yang berlaku. Setelah file HTML semuanya diproses, fungsi ini akan me-return suatu list yang berisi token - token.

```
def filter_tokens(tokens: list) -> list
```

Fungsi ini menerima list yang berisi token lalu fungsi ini akan memfilter list tersebut untuk membuang token - token tidak berguna dan me-return list yang berisi token yang akan digunakan pada PDA saja. Fungsi ini dipakai dalam fungsi parse_html.

```
def parse_html_with_nl(html_path: str) -> list
```

Fungsi ini menerima path atau filename dari file HTML. Lalu file HTML tersebut akan diparse menjadi beberapa token sesuai dengan ketentuan yang berlaku serta tidak menghilangkan character '/n'. Setelah file HTML semuanya diproses, fungsi ini akan me-return suatu list yang berisi token - token. Fungsi ini digunakan untuk keperluan mencari line yang error.

```
def filter_tokens_nl(tokens: list) -> list
```

Fungsi ini menerima list yang berisi token lalu fungsi ini akan memfilter list tersebut untuk membuang token - token tidak berguna dan me-return list yang berisi token yang akan digunakan pada PDA saja. Fungsi ini dipakai dalam fungsi parse_html_with_nl.

FILE: main.py

```
pda = parse_pda(file_pda)
tokens = parse_html(file_html)
process(pda, tokens, file_html)
```

Pertama, program akan memproses file definisi PDA, setelah itu proses tokenisasi dari file HTML dilakukan. Baru setelahnya pemrosesan token melalui PDA dilakukan untuk menentukan apakah terjadi syntax error atau tidak.

3.1.3 Antarmuka

Pengguna dapat menjalankan program dengan mengetik command berikut ini di terminal :

```
$ python main.py pda.txt <test.html>
```

pda.txt merupakan file yang menyimpan semua state PDA yang telah dibuat dan <test.html> dapat diubah sesuai file html yang ingin dicek kebenarannya. Setelah pengguna memasukkan perintah diatas maka akan program akan mengeluarkan 2 hasil yaitu :

- Jika file html yang dimasukkan benar

```
PS D:\Sem3\TBF0\TUBES-TBF0> python main.py pda.txt test2.html  
Accepted
```

- Jika file html yang dimasukkan salah, maka program akan mengeluarkan syntax error berupa, kesalahan dari file html tersebut berada di line ke berapa dan akan diberitahukan pesan kesalahannya.

```
PS D:\Sem3\TBF0\TUBES-TBF0> python main.py pda.txt test.html  
Syntax Error  
Error at line 62 (or line 61/63): token [ > ]
```

3.2 Kasus Uji dan Analisis

3.2.1 Kasus Uji 1

Berikut adalah file html yang dimasukkan untuk dicek kebenarannya :

```
<!-->  
<html><!-->  
  <head><!-->  
    <title></title>  
    <script src=""><strong> SCRIPT </strong></script>  
    <link rel="stylesheet" href=" HERE IS THE HREF"><!-->  
  </head>  
  <!-->  
  <body>  
    <script src=""></script>  
    <link rel="stylesheet" href=" HERE IS THE HREF">  
    <h1 class="d" id="1"><em> TES </em><b> TES </b><!--></h1><!-->  
    <br>  
    <p> TES <em>TES </em></p><!-->  
    <hr><hr class=" CLASS ">  
    <a ><strong> TES </strong></a>
```

```


<b> TES </b>
<em> TES </em>
<abbr><!-->
</abbr><!-->
<strong><!--></strong><!-->
<small><!--></small><!-->
<button type="submit"><small> TES </small></button><!-->
<form action=""
method="GET"><abbr>dwawd</abbr><!--></form><!-->
<input class="dw"><strong> HI </strong></input><!-->
<table>
  <!-->
  <tr>
    <td>
      <!-->
    </td>
    <th>
      TES TABLE HEADER
    </th>
  </tr><!-->
</table><!-->
<div><!-->
  <script><!--></script><!-->
  <div><!--><b> TES </b></div><b> INSIDE </b></div>
  hello --></div>

</div>
<!-->
</body>
<!-->
</html>
<!-->

```

Hasil keluaran dari program setelah di cek kebenarannya :

```

PS D:\Sem3\TBFO\TUBES-TBFO> python main.py pda.txt test2.html
Syntax Error
Error at line 26 (or line 25/27): token [ </input> ]

```

Dalam kasus uji ini, program menemukan kesalahan sintaks pada baris 26, yaitu keberadaan tag penutup </input>. Dalam HTML, tag

<input> dikategorikan sebagai void element, yang berarti tidak memerlukan dan tidak boleh memiliki tag penutup. Kesalahan ini mengindikasikan bahwa stack dalam PDA tidak berhasil dikosongkan secara tepat karena adanya elemen yang tidak diharapkan (dalam hal ini, tag penutup yang tidak valid). Pada intinya, PDA menggunakan stack untuk melacak pembukaan dan penutupan tag dalam dokumen HTML. Ketika sebuah tag pembuka dijumpai, PDA menambahkannya ke dalam stack. Sebaliknya, ketika menemukan tag penutup, PDA mencocokkannya dengan elemen teratas stack. Jika cocok, elemen tersebut di-"pop" dari stack. Namun, dalam kasus <input>, tidak ada elemen yang cocok di stack untuk di-"pop", karena <input> adalah void element dan tidak seharusnya memiliki tag penutup. Kesalahan ini secara efektif mengganggu proses penguraian normal oleh PDA dan menyebabkan output "Syntax Error".

3.2.2 Kasus Uji 2

Berikut adalah file html yang dimasukkan untuk dicek kebenarannya :

```
<html >
  <head>
    <title> TUBES TBFO </title>
  </head>
  <body><!-- This is comment - --->
    <script>dwwda</script>
    <div>
      <div><!-- COMMENT <div> TES COMMENT - --->
        TES
      </div> ANYTHING INSIDE
    </div> HI
  </body>
</html>
```

Hasil keluaran dari program setelah di cek kebenarannya :

```
PS D:\Sem3\TBFO\TUBES-TBFO> python main.py pda.txt test2.html
Syntax Error
Error at line 11 (or line 10/12): Text can't be in <html>, <head>, <body>, <table>, or <tr> tag
```


Dalam kasus uji kedua ini, program PDA mengidentifikasi kesalahan sintaks pada baris 11, dengan pesan kesalahan menunjukkan bahwa teks tidak bisa berada langsung di dalam tag <html>, <head>, <body>, <table>, atau <tr>. Dalam HTML, umumnya teks atau konten harus berada di dalam elemen lain seperti <div>, <p>, atau elemen serupa yang secara semantik dirancang untuk menampung konten. Dalam dokumen HTML yang diberikan, terdapat teks yang muncul langsung setelah penutupan tag <div> dan sebelum penutupan tag <div> luar serta tag <body>. PDA menggunakan stack untuk melacak pembukaan dan penutupan tag, ketika tag <div> ditutup, teks yang muncul setelahnya tidak memiliki tag pembuka yang sesuai dalam stack, menyebabkan PDA menandainya sebagai kesalahan.

3.2.3 Kasus Uji 3

Berikut adalah file html yang dimasukkan untuk dicek kebenarannya :

```
<html>
<head>
  <title>Simple Webpage</title>
  <script>
    document.getElementById("demo").innerHTML = "Hello JavaScript!";
  </script>
</head>
<body>

<h1>The script element</h1>

<p id="demo">

</body>
</html>
```

Hasil keluaran dari program setelah di cek kebenarannya :

```
PS D:\Sem3\TBF0\TUBES-TBF0> python main.py pda.txt test2.html

Syntax Error

Error at line 14 (or line 13/15): token [ </body> ]
```

Dalam kasus uji ketiga, program PDA mengidentifikasi kesalahan sintaks pada baris 14, yang menunjukkan adanya masalah dengan tag </body>. Kesalahan ini terjadi karena tag <p> yang dibuka di baris sebelumnya tidak pernah ditutup sebelum tag <body> diakhiri. Dalam HTML, setiap tag yang dibuka harus memiliki tag penutup yang sesuai, dan struktur ini

harus diikuti secara konsisten agar dokumen HTML valid. Ketika PDA menemukan tag pembuka, seperti `<p>`, tag tersebut ditambahkan ke dalam stack. Idealnya, ketika tag penutup untuk `<p>` ditemukan, tag tersebut seharusnya dicocokkan dengan item teratas di stack dan kemudian dihilangkan (pop). Namun, dalam kasus ini, karena tidak ada tag penutup untuk `<p>`, ketika PDA mencapai tag `</body>`, masih terdapat elemen `<p>` yang tidak tertutup di dalam stack. Ini menyebabkan ketidakcocokan dan dianggap sebagai kesalahan sintaks oleh program.

BAB IV

PENUTUP

4.1 Kesimpulan

Pada tugas besar ini, kami mengimplementasikan materi mengenai Pushdown Automata (PDA) yang dipelajari dalam kuliah Teori Bahasa Formal dan Otomata IF2124. Implementasi ini menggunakan *command-line interface* sebagai dasar untuk menjalankan programnya. Penggunaan program ini cukup mudah karena hanya perlu memanggil program main beserta file txt yang berisi state setiap tag dan file html sebagai file yang akan diperiksa. Untuk menjalankannya, user hanya perlu memasukkan “python main.py <file.txt> <file.html>” ke dalam command line dan output akan memberitahu hasil pengecekan beserta barisnya jika ada error dalam file html tersebut.

Melalui tugas ini, kami dapat menerapkan dan mempelajari lebih lanjut materi mengenai pushdown automata yang telah diajarkan di perkuliahan. Selain itu, kami juga dapat belajar hal baru dalam bahasa python sebagai hasil dari penerapan pushdown automata.

4.2 Saran

Spesifikasi program yang kurang detail menyebabkan timbulnya berbagai pertanyaan dan situasi yang memerlukan klarifikasi. Akibatnya, terjadi beberapa revisi pada PDA yang kami kerjakan. Namun, beruntung adanya penundaan tenggat waktu memberikan ruang lebih untuk melakukan penyesuaian yang diperlukan. Untuk mengembangkan program dan Pushdown Automata yang lebih efektif, diperlukan spesifikasi yang lebih terperinci tentang aturan-aturan yang harus diikuti atau dihindari.

4.3 Pembagian Tugas

NIM	NAMA	TUGAS
13522073	Juan Alfred	Membuat main.py, pdaparser.py,

	Widjaya	mengerjakan pda.txt, mengerjakan laporan
13522081	Albert	Membuat htmlparser.py, testing, dan mengerjakan laporan
13522111	Ivan Hendrawan Tan	Mengerjakan pda.txt, membuat diagram PDA, mengerjakan laporan

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- Geeksforgeeks. (t.t.). Introduction of pushdown automata. Diakses pada 23 November 2023 , dari <https://www.geeksforgeeks.org/introduction-of-pushdown-automata/>
- W3Schools. (t.t.). HTML Tutorial. Diakses pada 23 November 2023, dari <https://www.w3schools.com/html/>
- Wikipedia. (t.t.). Pushdown automaton. Diakses pada 23 November 2023, dari https://en.wikipedia.org/wiki/Pushdown_automaton
- KK Informatika. (2023). Slide PowerPoint Bab 6 Pushdown Automata. Diakses 24 November 2023, dari <https://edunex.itb.ac.id/courses/49724/preview/208078>

LAMPIRAN

- Link Repository Github

<https://github.com/Bodleh/TUBES-TBFO>

- Link Diagram State

https://drive.google.com/file/d/1aHzouOOX0URESrJvuCPNgKggnn_jNzX0Y/view?usp=sharing atau

https://viewer.diagrams.net/?tags=%7B%7D&target=blank&highlight=0000ff&edit=_blank&layers=1&nav=1&title=TBFO.drawio#Uhttps%3A%2F%2Fdrive.google.com%2Fuc%3Fid%3D1aHzouOOX0URESrJvuCPNgKggnn_jNzX0Y%26export%3Ddownload