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Theory of automata
(Assignment #1)

1) Descriptive:

The languge A of string of even length, defined over $\Sigma = \{c\}$ written as:-

A = { Λ, dd, dddd, dddddd, ddddddddd, dddddddddddd, dddddddddddddddddddddddd, dddddddddddddddddddddddddddddd, dddddddddddddddddddddddddddddddddddddd, dddddddddddddddddddddddddddddddddddddddddddd ... }

2) Descriptive

The length A of string that doesn't start with 'y' defined over $\Sigma = \{x, y, z, w\}$

A = { Λ, x, z, wx, wz, wy, xw, xy, xz, zw, zx, zy, wxy, wxz, wxyz, xyz, xyzw, zxyw, zwxy ... }

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3) Descriptive

The language of string of length 2 defined over $\Sigma = \{0, 1, 2, 3, 4, 5\}$ written as:

$A = \{00, 01, 11, 12, 21, 02, 20, 23, 24, 25, 30, 31, 32, 33, 34, 35, 40, 41, 42, 43, 44, 45 \ldots\}$

4) Descriptive

The language of string with equal number of a's equal to number of b's defined our $\Sigma = \{a, b\}$

$A = \{\Lambda, ab, aabb, aaabbb, aaabbbb, aaaabbbbba, abab, ababab, abababab$ $aaabbbabb, abba, bbaa, abbaba, bbbaaa, abbabba, bababa, aabbabb$ $bbbbaaaa \ldots\}$

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5) Descriptive

The language of string $a \cdot b^n$ defined ove $\Sigma = \{a, b\}$

$A = \{ab, abb, abbb, abbbb, abbbbb, abbbbbb, abbbbbbb, abbbbbbbb, abbbbbbbbb, abbbbbbbbbb, abbbbbbbbbbb, abbbbbbbbbbbb, abbbbbbbbbbbbb, \ldots\}$

6) Descriptive

$\Sigma = \{a, b\}$

The language A of prime no define over:

$A = \{2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79 \ldots\}$

7) Descriptive

The language L of string with one even and one odd define over

$\Sigma = \{x, y\}$

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$A = \{xyy, yyx, xxxyy, xxyyy,$
$xxxxy, yxxxx, xyyyy, yyyx,$
$xxxyyyy, yyyyxxx, xxxxyy,$
$xxxxyyyy \ldots\}$

8) Descriptive

The language A of string with start with a defined over $\Sigma = \{a, b, c, d\}$.

$A = \{ab, ac, ad, abc, abd, acd,$
$abcd, acbd, acdb, adbc, adcb,$
$adbcadddbc \ldots\}$

9) Descriptive

Languge A of string which start with a's and end with b's which defined our $\Sigma = \{a, b\}$

$A = \{ab, aab, aabb, abbab, ababb,$
$aabbabb, aabbb, aabbbb, abababb,$
$aaabbab, aaabbbb, ababababab \ldots\}$

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10) descriptive

The language A of string with same ending and starting point which is defined over

$\Sigma = \{w, x, y, z\}$

$A = \{w, xw, wxyw, wxyzw, wxxzw$
$xwx, xyx, xzx, xwyx, xwyzx,$
$ywy, yxy, yzy, yxxy \ldots\}$

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1) Recursive

① d belong to this language
② If x is in even then $(x+2)(x-2)$ belongs to Σ.
③ No other string except double above are part of this language.

2) Recursive

① wxyz belong to this language.
② If x is in L then s(x) is also in A, where s belong to Σ.
③ No other strings except double above are part of this language

3) Recursive

① 0,1,2,3,4,5 belong to this language
② if s(x) and x = 2 belong to language
③ No other string except describe above part of this language.

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4) Recursive.

① a, b belong to this language
② s(a)(b) s in A where s belong to Σ.
③ No other string except describe above on part of this langueg.

5) Recursive.

① ab belong to this language.
② If x is in {a,b} the axb is in {a,b}.
③ No other string except describe above are part of this language.

6) Recursive.

① whole no. belong to this language.
② if x is in prime then whole no. belong to Σ.
③ No, integer except these constructed in above are allowed to be in prime.

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7) Recursive.

1. x, y are in language.
2. s(xx)(yyy) are above in A where s belongs to Σ.
3. No string except those constructed in above are allowed to be in A.

8) Recursive.

1. a are in A
2. (a)s are also in A where s belong to Σ.
3. No string except those constructed in above are allowed to be in A.

9) Recursive.

1. a, b are in language.
2. (a)s(b) are in A, where s belong to Σ.
3. No string except above are included in language.

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10) Recursive.

① a, b are in language.
② (a) s(b) are in L where s belonge to Σ.

③ No string except above are included in language.

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