

## Supplemental Figure 1 Rules for anterior proximal occlusion

1	If	occlu × OR × non-opa × OR × non opa × OR × not opa × OR × loss of opacif × C	appears, then score	0	+ ×
	and	M1 × OR × \b M1/M2\b × OR × \b M1-M2\b × OR × proximal .* MCA × OR × MC	appears, then score	3	×
	if	patent × OR × patency ×	appears before 1, then score	-2	×
	unless	\bno\b × OR × abse × OR × without occlu × OR × without cutoff × OR × recan × OI	appears, then score		×
	unless	stenosis × OR × near × OR × almost × OR × eccentric ×	appears before 1, then score		×
2	If	M2 × OR × M3 × OR × A2 × OR × posterior ×	appears, then score	-1	+ ×
	unless	M1 × OR × proximal .* MCA × OR × MCA bifurcation × OR × ICA/MCA × OR × MCA/	appears, then score		×
3	If	no .* proximal vessel occlusion × OR × no .* large vessel occlusion ×	appears, then score	-3	+ ×
	unless	other ×	appears, then score		×
4	If	\b carotid T\b × OR × \b carotid L\b × OR × \b carotid "T"\b × OR × \b carotid "L\b" ×	appears, then score	3	+ ×
5	If	\b with distal recanalization of the M2\b ×	appears, then score	3	+ ×

### Rules for anterior proximal occlusion (text format):

```

"Name": "1",
"Dirty": false,
"Rules": [
  {
    "Primary": {
      "Rule": [
        "occlu",
        "OR",
        "non-opa",
        "OR",
        "non opa",
        "OR",
        "not opa",
        "OR",
        "loss of opacif",
        "OR",
        "non-fill",
        "OR",
        "non fill",
        "OR",
        "nonfill",
        "OR",
      ]
    }
  }
]

```

```
"not seen",
"OR",
"not visual",
"OR",
"cutoff",
"OR",
"cut off",
"OR",
"thrombus",
"OR",
"filling defect",
"OR",
"clot",
"OR",
"abrupt term"
],
"Score": 0,
"Selected": false,
"type": "Primary",
"u_id": "crqoyt"
},
"Secondary": {
  "Replace": [
    {
      "Rule": [
        "M1",
        "OR",
        "\\b M1/M2 \\b",
        "OR",
        "\\b M1-M2 \\b",
        "OR",
        "proximal .* MCA",
        "OR",
        "MCA bifurcation",
        "OR",
        "MCA .* bifurcation",
        "OR",
        "ICA/MCA",
        "OR",
        "ICA and MCA",
        "OR",
        "MCA/ICA",
        "OR",
        "A1"
      ],
      "Score": 3,
      "Modifier": "None",
      "Selected": false,
      "type": "Replace",
      "u_id": "yq2y5a"
    }
  ],
  "Ignore": [
    {
      "Rule": [
        "\\bno\\b",
        "OR",
        "abse",

```

```
    "OR",
    "without occlu",
    "OR",
    "without cutoff",
    "OR",
    "recan",
    "OR",
    "partial",
    "OR",
    "near tot",
    "OR",
    "non-occl",
    "OR",
    "nonoccl"
  ],
  "Score": 0,
  "Modifier": "None",
  "Selected": false,
  "type": "Ignore",
  "u_id": "gj53e"
},
{
  "Rule": [
    "stenosis",
    "OR",
    "near",
    "OR",
    "almost",
    "OR",
    "eccentric"
  ],
  "Score": 0,
  "Modifier": "b",
  "Selected": false,
  "type": "Ignore",
  "u_id": "zzol4o"
}
],
"Add": [
  {
    "Rule": [
      "patent",
      "OR",
      "patency"
    ],
    "Score": -2,
    "Modifier": "b",
    "Selected": false,
    "type": "Add",
    "u_id": "zt3j"
  }
]
}
},
{
  "Primary": {
    "Rule": [
      "M2",
```

```

    "OR",
    "M3",
    "OR",
    "A2",
    "OR",
    "posterior"
  ],
  "Score": -1,
  "Selected": false,
  "type": "Primary",
  "u_id": "62wswd"
},
"Secondary": {
  "Replace": [],
  "Ignore": [
    {
      "Rule": [
        "M1",
        "OR",
        "proximal .* MCA",
        "OR",
        "MCA bifurcation",
        "OR",
        "ICA/MCA",
        "OR",
        "MCA/ICA"
      ],
      "Score": 0,
      "Modifier": "None",
      "Selected": false,
      "type": "Ignore",
      "u_id": "2f2zqf"
    }
  ],
  "Add": []
}
},
{
  "Primary": {
    "Rule": [
      "no .* proximal vessel occlusion",
      "OR",
      "no .* large vessel occlusion"
    ],
    "Score": -3,
    "Selected": false,
    "type": "Primary",
    "u_id": "7oemce"
  },
  "Secondary": {
    "Replace": [],
    "Ignore": [
      {
        "Rule": [
          "other"
        ],
        "Score": 0,
        "Modifier": "None",

```

```
        "Selected": false,
        "type": "Ignore",
        "u_id": "yaahbi"
    }
],
"Add": []
}
},
{
  "Primary": {
    "Rule": [
      "\\b carotid T \\b",
      "OR",
      "\\b carotid L \\b",
      "OR",
      "\\b carotid \\\"T\\\" \\b",
      "OR",
      "\\b carotid \\\"L \\b\\\"\"
    ],
    "Score": 3,
    "Selected": false,
    "type": "Primary",
    "u_id": "co00w"
  },
  "Secondary": {
    "Replace": [],
    "Ignore": [],
    "Add": []
  }
},
{
  "Primary": {
    "Rule": [
      "\\b with distal recanalization of the M2 \\b"
    ],
    "Score": 3,
    "Selected": true,
    "type": "Primary",
    "u_id": "p6zx3"
  },
  "Secondary": {
    "Replace": [],
    "Ignore": [],
    "Add": []
  }
}
]
}
```

## Supplemental Figure 2 Rules for anterior distal occlusion

1	if	occlu × OR × non-opa × OR × nonopa × OR × not opa × OR × loss of opacif × O	appears, then score	0	+ ×
	and	\bM2\b × OR × \bM3\b × OR × \bM4\b × OR × \bM2/M3\b × OR × \bM2-M3\b ×	appears, then score	1	×
	if	patent × OR × patency × OR × attenuated × OR × non-occlusive × OR × with	appears, then score	-1	×
	if	\bM1\b × OR × \bA1\b × OR × \bA1s\b × OR × \bproximal.*MCA\b × OR × \bM	appears, then score	-1	×
	unless	without occlu × OR × without cutoff × OR × recan × OR × partial × OR × vasospasm	appears, then score		×
	unless	almost × OR × eccentric × OR × resolution × OR × nonoc × OR × non-occlu × OR	appears, then score		×
	unless	\bproximal vessel occlusion\b × OR × \bcarotid T\b × OR × \bcarotid L\b × OR × \bcarotid "	appears, then score		×
	unless	possib × OR × difficult to determin × OR ×	appears, then score		×

### Rules for anterior distal occlusion (text format):

```
{
  "Name": "1",
  "Dirty": false,
  "Rules": [
    {
      "Primary": {
        "Rule": [
          "occlu",
          "OR",
          "non-opa",
          "OR",
          "nonopa",
          "OR",
          "not opa",
          "OR",
          "loss of opacif",
          "OR",
          "non-fill",
          "OR",
          "loss of filling",
          "OR",
          "\\babsence.*filling\\b",
          "OR",
          "abrupt termination",
          "OR",
          "cut off",
          "OR",
          "OR"
        ]
      }
    }
  ]
}
```

```
"cutoff",
"OR",
"filling defect",
"OR",
"thrombus"
],
"Score": 0,
"Selected": false,
"type": "Primary",
"u_id": "84e9x"
},
"Secondary": {
  "Replace": [
    {
      "Rule": [
        "\\bM2\b",
        "OR",
        "\\bM3\b",
        "OR",
        "\\bM4\b",
        "OR",
        "\\bM2/M3\b",
        "OR",
        "\\bM2-M3\b",
        "OR",
        "\\bA2\b",
        "OR",
        "\\bA3\b",
        "OR",
        "\\bA4\b",
        "OR",
        "\\bdistal.*MCA\b",
        "OR",
        "\\b distal.*ACA\b",
        "OR",
        "opercular branch",
        "OR",
        "insular branch",
        "OR",
        "callosomarginal",
        "OR",
        "sylvian"
      ],
      "Score": 1,
      "Modifier": "None",
      "Selected": false,
      "type": "Replace",
      "u_id": "qh927"
    }
  ],
  "Ignore": [
    {
      "Rule": [
        "without occlu",
        "OR",
        "without cutoff",
        "OR",
        "recan",

```

```

    "OR",
    "partial",
    "OR",
    "vasospasm",
    "OR",
    "no definit"
  ],
  "Score": 0,
  "Modifier": "None",
  "Selected": false,
  "type": "Ignore",
  "u_id": "riwbu5"
},
{
  "Rule": [
    "almost",
    "OR",
    "eccentric",
    "OR",
    "resolution",
    "OR",
    "nonocclusive",
    "OR",
    "near",
    "OR",
    "partially"
  ],
  "Score": 0,
  "Modifier": "None",
  "Selected": false,
  "type": "Ignore",
  "u_id": "911tyh"
},
{
  "Rule": [
    "\\bproximal vessel occlusion\\b",
    "OR",
    "\\bcarotid T\\b",
    "OR",
    "\\bcarotid L\\b",
    "OR",
    "\\bcarotid \\T\\b",
    "OR",
    "\\bcarotid \\L\\b"
  ],
  "Score": 0,
  "Modifier": "None",
  "Selected": false,
  "type": "Ignore",
  "u_id": "sajbqx"
},
{
  "Rule": [
    "possib",
    "OR",
    "difficult to determin",
    "OR"
  ],
  ],

```



```
"Score": 0,
"Modifier": "None",
"Selected": true,
"type": "Ignore",
"u_id": "obx8kr"
}
],
"Add": [
{
"Rule": [
"patent",
"OR",
"patency",
"OR",
"attenuated",
"OR",
"non-occlusive",
"OR",
"without"
],
"Score": -1,
"Modifier": "None",
"Selected": false,
"type": "Add",
"u_id": "z24f9n"
},
{
"Rule": [
"\\bM1\\b",
"OR",
"\\bA1\\b",
"OR",
"\\bA1s\\b",
"OR",
"\\bproximal.*MCA\\b",
"OR",
"\\bMCA bifurcation\\b",
"OR",
"\\bproximal.*ACA\\b",
"OR",
"\\bICA/MCA\\b",
"OR",
"\\bMCA/ICA\\b",
"OR",
"\\bM1/M2\\b",
"OR",
"\\bM1-M2\\b",
"OR",
"petrous",
"OR",
"\\bICA\\b",
"OR",
"internal carotid artery"
],
"Score": -1,
"Modifier": "None",
"Selected": false,
"type": "Add",
```

```
    "u_id": "jmvp3b"  
  }  
] }  
] }  
}
```

## Supplemental Figure 3 Rules for basilar occlusion

1

If basilar artery OR basilar tip OR basilar appears, then score 0

if occlu OR non-opacification OR non-filling OR filling defect OR oc appears, then score 1

if stenosis OR near-occlusion OR near occlusion OR non occlu OR appears, then score -1

if \bno\b OR history appears before 1, then score -1

### Rules for basilar occlusion (text format):

```
{
  "Name": "1",
  "Dirty": false,
  "Rules": [
    {
      "Primary": {
        "Rule": [
          "basilar artery",
          "OR",
          "basilar tip",
          "OR",
          "basilar"
        ],
        "Score": 0,
        "Selected": false,
        "type": "Primary",
        "u_id": "xs86f"
      },
      "Secondary": {
        "Replace": [],
        "Ignore": [],
        "Add": [
          {
            "Rule": [
              "occlu",
              "OR",
              "non-opacification",
              "OR",
              "non-filling",
              "OR",
              "filling defect",
              "OR",
              "occlusive thrombus",
              "OR",
              "thrombus",
              "OR",
              "thrombosis"
            ],
            "Score": 1,
            "Modifier": "None",
            "Selected": false,
            "type": "Add",
            "u_id": "ggzrch"
          }
        ]
      }
    }
  ]
}
```

```
},
{
  "Rule": [
    "stenosis",
    "OR",
    "near-occlusion",
    "OR",
    "near occlusion",
    "OR",
    "non occlu",
    "OR",
    "without evidence of",
    "OR",
    "nearly",
    "OR",
    "almost",
    "OR",
    "recanaliz",
    "OR",
    "perfus",
    "OR",
    "congenital",
    "OR",
    "\\bcannot.*excluded\\b"
  ],
  "Score": -1,
  "Modifier": "None",
  "Selected": true,
  "type": "Add",
  "u_id": "2nrnig"
},
{
  "Rule": [
    "\\bno\\b",
    "OR",
    "history"
  ],
  "Score": -1,
  "Modifier": "b",
  "Selected": false,
  "type": "Add",
  "u_id": "5awu7"
}
]
}
]
}
```

## Supplemental Figure 4 Rules for presence of established ischemia

1 If  appears, then score  + ✕

✕ unless  appears, then score  ✕

✕ unless  appears, then score  ✕

✕ unless  appears, then score  ✕

✕ unless  appears, then score  ✕

✕ unless  appears, then score  ✕

✕ unless  appears, then score  ✕

✕ unless  appears, then score  ✕

✕ unless  appears, then score  ✕

✕ unless  appears, then score  ✕

✕ unless  appears, then score  ✕

Rules for presence of established ischemia (text format):

```
{
  "Name": "2",
  "Dirty": false,
  "Rules": [
    {
      "Primary": {
        "Rule": [
          "ischem",
          "OR",
          "loss.*white",
          "OR",
          "reduced.*white",
          "OR",
          "\bmatched",
          "OR",
          "evolution",
          "OR",
          "subacute",
          "OR",
          "infarct",
          "OR",
          "hypodensity",
          "OR",
```

```
"reduced atten",
"OR",
"loss.*diff"
],
"Score": 1,
"Selected": true,
"type": "Primary",
"u_id": "4jcpvo"
},
"Secondary": {
  "Replace": [],
  "Ignore": [
    {
      "Rule": [
        "no evidence of",
        "OR",
        "chronic",
        "OR",
        "old",
        "OR",
        "indeterminate",
        "OR",
        "\\bnot\\b",
        "OR",
        "early"
      ],
      "Score": 0,
      "Modifier": "None",
      "Selected": false,
      "type": "Ignore",
      "u_id": "a91kvh"
    },
    {
      "Rule": [
        "nonspecific",
        "OR",
        "non-specific",
        "OR",
        "remote",
        "OR",
        "definite",
        "OR",
        "without",
        "OR",
        "previous"
      ],
      "Score": 0,
      "Modifier": "None",
      "Selected": false,
      "type": "Ignore",
      "u_id": "7v1qqv"
    },
    {
      "Rule": [
        "artifact",
        "OR",
        "age.*indetermin",
        "OR",
```

```
"can be missed",
"OR",
"\\bvenous\\b",
"OR",
"edema",
"OR",
"contusion"
],
"Score": 0,
"Modifier": "None",
"Selected": false,
"type": "Ignore",
"u_id": "sz72on"
},
{
  "Rule": [
    "if.*concern",
    "OR",
    "not.*excluded",
    "OR",
    "prior",
    "OR",
    "cannot be ruled out",
    "OR",
    "exclude",
    "OR",
    "hematoma"
  ],
  "Score": 0,
  "Modifier": "None",
  "Selected": false,
  "type": "Ignore",
  "u_id": "iizffw"
},
{
  "Rule": [
    "hemorrhage",
    "OR",
    "recommend",
    "OR",
    "query",
    "OR",
    "indeterminate age",
    "OR",
    "microangiopathic"
  ],
  "Score": 0,
  "Modifier": "None",
  "Selected": false,
  "type": "Ignore",
  "u_id": "v8xhu"
},
{
  "Rule": [
    "sensitive",
    "OR",
    "uncertain",
    "OR",
```

```
    "cyst",
    "OR",
    "evaluate",
    "OR",
    "comparison",
    "OR",
    "poorly visualized"
  ],
  "Score": 0,
  "Modifier": "None",
  "Selected": false,
  "type": "Ignore",
  "u_id": "061ov"
},
{
  "Rule": [
    "consider",
    "OR",
    "MR",
    "OR",
    "\\bno\\b",
    "OR",
    "thyroid",
    "OR",
    "potential",
    "OR",
    "similar",
    "OR",
    "mismatch"
  ],
  "Score": 0,
  "Modifier": "None",
  "Selected": false,
  "type": "Ignore",
  "u_id": "ynnks"
},
{
  "Rule": [
    "tonsil",
    "OR",
    "suspicious",
    "OR",
    "may",
    "OR",
    "questionable",
    "OR",
    "possib",
    "OR",
    "can"
  ],
  "Score": 0,
  "Modifier": "None",
  "Selected": false,
  "type": "Ignore",
  "u_id": "dh1gy"
},
{
  "Rule": [
```



```
    "likely",
    "OR",
    "subtle",
    "OR",
    "again",
    "OR",
    "diffuse",
    "OR",
    "generalized",
    "OR",
    "encephalom",
    "OR",
    "since",
    "OR",
    "myocard"
  ],
  "Score": 0,
  "Modifier": "None",
  "Selected": false,
  "type": "Ignore",
  "u_id": "er01nq"
},
{
  "Rule": [
    "unchang",
    "OR",
    "stable"
  ],
  "Score": 0,
  "Modifier": "None",
  "Selected": false,
  "type": "Ignore",
  "u_id": "a4xj2f"
}
],
"Add": []
}
]
}
```

## Supplemental Figure 5 Rules for presence of any hemorrhage

1 If `hemorr × OR × hemat × OR × haemo ×` appears, then score  + ×

if `subarach × OR × acute × OR × transform ×` appears before 1, then score  ×

unless `\bno\b × OR × \bold\b × OR × chron × OR × prev × OR × scalp × OR × soft ×` appears before 1, then score  ×

unless `contrast.*retention × OR × retention.*contrast × OR × contrast.*extravasaton × OR × ex ×` appears before 1, then score  ×

unless `\bcannot be excluded\b × OR × contrast.*extravasation × OR × extravasation.*contrast × O ×` appears after 1, then score  ×

unless `against × OR × \bnone\b × OR × without × OR × or contrast × OR × of contrast ×` appears before 1, then score  ×

2 If `\bacute.*chronic\b ×` appears, then score  + ×

if `hemorr × OR × hemat × OR × haemo ×` appears after 1, then score  ×

3 If `\bno\b.*hemo × OR × \bno\b.*hemat × OR × \bno\b.*haemo × OR × \bno\b.*blood ×` appears, then score  + ×

and `chronic × OR × old × OR × previous ×` appears, then score  ×

unless `cause for ×` appears, then score  ×

4 If `blood × OR × bleed ×` appears, then score  + ×

unless `volume × OR × flow × OR × \bno\b × OR × rule out × OR × limits × OR × artifac ×` appears, then score  ×

### Rules for presence of any hemorrhage (text format):

```
{
  "Name": "1",
  "Dirty": false,
  "Rules": [
    {
      "Primary": {
        "Rule": [
          "hemorr",
          "OR",
          "hemat",
          "OR",
          "haemo"
        ],
        "Score": 1,
        "Selected": false,
        "type": "Primary",
        "u_id": "k1p17i"
      },
      "Secondary": {
```

```

"Replace": [],
"Ignore": [
  {
    "Rule": [
      "\\bno\\b",
      "OR",
      "\\bold\\b",
      "OR",
      "chron",
      "OR",
      "prev",
      "OR",
      "scalp",
      "OR",
      "soft tissue",
      "OR",
      "intramuscular",
      "OR",
      "extravascular",
      "OR",
      "\\bnot\\b",
      "OR",
      "without",
      "OR",
      "intramural",
      "OR",
      "\\bno.*change\\b"
    ],
    "Score": 0,
    "Modifier": "b",
    "Selected": true,
    "type": "Ignore",
    "u_id": "4nzvq8"
  },
  {
    "Rule": [
      "contrast.*retention",
      "OR",
      "retention.*contrast",
      "OR",
      "contrast.*extravasaton",
      "OR",
      "extravasation.*contrast",
      "OR",
      "suspected"
    ],
    "Score": 0,
    "Modifier": "b",
    "Selected": false,
    "type": "Ignore",
    "u_id": "ny8hnk"
  },
  {
    "Rule": [
      "\\bcannot be excluded\\b",
      "OR",
      "contrast.*extravasation",
      "OR",

```

```

    "extravasation.*contrast",
    "OR",
    "or contrast",
    "OR",
    "of contrast",
    "OR",
    "\\bcannot be ruled out\\b",
    "OR",
    "not seen"
  ],
  "Score": 0,
  "Modifier": "a",
  "Selected": false,
  "type": "Ignore",
  "u_id": "im76r4"
},
{
  "Rule": [
    "against",
    "OR",
    "\\bnone\\b",
    "OR",
    "without",
    "OR",
    "or contrast",
    "OR",
    "of contrast",
    "OR",
    "may",
    "OR",
    "limits.*sensitivity",
    "OR",
    "last study",
    "OR",
    "\\blimits\\b",
    "OR",
    "rather than"
  ],
  "Score": 0,
  "Modifier": "b",
  "Selected": false,
  "type": "Ignore",
  "u_id": "m0fnjc"
}
],
"Add": [
  {
    "Rule": [
      "subarach",
      "OR",
      "acute",
      "OR",
      "transform"
    ],
    "Score": 1,
    "Modifier": "b",
    "Selected": false,
    "type": "Add",
  }
]

```

```
        "u_id": "b4866u"
      }
    ]
  }
},
{
  "Primary": {
    "Rule": [
      "\\bacute.* chronic\\b"
    ],
    "Score": 0,
    "Selected": false,
    "type": "Primary",
    "u_id": "gvnxj"
  },
  "Secondary": {
    "Replace": [],
    "Ignore": [],
    "Add": [
      {
        "Rule": [
          "hemorr",
          "OR",
          "hemat",
          "OR",
          "haemo"
        ],
        "Score": 3,
        "Modifier": "a",
        "Selected": false,
        "type": "Add",
        "u_id": "c63b7z"
      }
    ]
  }
}
},
{
  "Primary": {
    "Rule": [
      "\\bno\\b.*hemo",
      "OR",
      "\\bno\\b.*hemat",
      "OR",
      "\\bno\\b.*haemo",
      "OR",
      "\\bno\\b.*blood"
    ],
    "Score": 0,
    "Selected": false,
    "type": "Primary",
    "u_id": "d6r8af"
  },
  "Secondary": {
    "Replace": [
      {
        "Rule": [
          "chronic",
          "OR",

```

```
        "old",
        "OR",
        "previous"
    ],
    "Score": -1,
    "Modifier": "None",
    "Selected": false,
    "type": "Replace",
    "u_id": "4412f8"
}
],
"Ignore": [
    {
        "Rule": [
            "cause for"
        ],
        "Score": 0,
        "Modifier": "None",
        "Selected": false,
        "type": "Ignore",
        "u_id": "nle6pa"
    }
],
"Add": []
}
},
{
    "Primary": {
        "Rule": [
            "blood",
            "OR",
            "bleed"
        ],
        "Score": 1,
        "Selected": false,
        "type": "Primary",
        "u_id": "mtzbqf"
    },
    "Secondary": {
        "Replace": [],
        "Ignore": [
            {
                "Rule": [
                    "volume",
                    "OR",
                    "flow",
                    "OR",
                    "\\bno\\b",
                    "OR",
                    "rule out",
                    "OR",
                    "limits",
                    "OR",
                    "artifact",
                    "OR",
                    "cannot be excluded",
                    "OR",
                    "pressure",
                ]
            }
        ]
    }
}
```

```
    "OR",
    "sugar"
  ],
  "Score": 0,
  "Modifier": "None",
  "Selected": false,
  "type": "Ignore",
  "u_id": "b3bvcv"
}
],
"Add": []
}
]
}
```

## Supplemental Figure 6 Rules for Alberta stroke program early CT score (binary)

1 2 + Delete File Save File

Add Primary Rule

1 If aspect appears, then score 0 + x

and lb0 OR lb1b OR one OR lb2 OR two OR lb3 C appears after 1, then score 1 x

unless seri appears, then score x

1 2 + Delete File Save File

Add Primary Rule

1 If aspect appears, then score 0 + x

and lb5 OR five OR lb6 OR six OR lb7 OR seven C appears after 1, then score 1 x

unless lb4lb OR four OR seri appears, then score x

### Rules for Alberta stroke program early CT score (text format):

```
{
  "Name": "1",
  "Dirty": false,
  "Rules": [
    {
      "Primary": {
        "Rule": [
          "aspect"
        ],
        "Score": 0,
        "Selected": false,
        "type": "Primary",
        "u_id": "676aj"
      },
      "Secondary": {
        "Replace": [
          {
            "Rule": [
              "\\b0\\b",
              "OR",
              "zero",
              "OR",
              "\\b1\\b",
              "OR",
              "\\bone",
              "OR",
            ]
          }
        ]
      }
    }
  ]
}
```



```
        "\\b2",
        "OR",
        "\\btwo",
        "OR",
        "\\b3",
        "OR",
        "\\bthree",
        "OR",
        "\\b4",
        "OR",
        "\\bfour",
        "OR",
        "\\b4-\\b"
    ],
    "Score": 1,
    "Modifier": "a",
    "Selected": true,
    "type": "Replace",
    "u_id": "gbfu7c"
}
],
"Ignore": [
    {
        "Rule": [
            "seri",
            "OR",
            "image"
        ],
        "Score": 0,
        "Modifier": "None",
        "Selected": false,
        "type": "Ignore",
        "u_id": "vzllm"
    }
],
"Add": []
}
]
}
{
    "Name": "2",
    "Dirty": false,
    "Rules": [
        {
            "Primary": {
                "Rule": [
                    "aspect"
                ],
                "Score": 0,
                "Selected": false,
                "type": "Primary",
                "u_id": "m0oex7"
            },
            "Secondary": {
                "Replace": [
                    {
```

```
"Rule": [
  "\\b5",
  "OR",
  "five",
  "OR",
  "\\b6",
  "OR",
  "six",
  "OR",
  "\\b7",
  "OR",
  "seven",
  "OR",
  "\\b8",
  "OR",
  "eight",
  "OR",
  "\\b9",
  "OR",
  "nine",
  "OR",
  "\\b10\\b",
  "OR",
  "\\bten\\b"
],
"Score": 1,
"Modifier": "a",
"Selected": false,
"type": "Replace",
"u_id": "n1uc7a"
}
],
"ignore": [
  {
    "Rule": [
      "\\b4\\b",
      "OR",
      "four",
      "OR",
      "seri"
    ],
    "Score": 0,
    "Modifier": "None",
    "Selected": true,
    "type": "Ignore",
    "u_id": "bxj4si"
  }
],
"Add": []
}
]
}
```

## Supplemental Figure 7 Rules for collateral status

1 2 3 + Delete File Save File

Add Primary Rule

1 If collateral appears, then score 0

and good OR greater than 50% OR more than 50% OR minimal reduction appears, then score 1

unless density OR flow appears, then score

2 If collateral appears, then score 0

and good.\*flow OR flow.\*good appears, then score 1

1 2 3 + Delete File Save File

Add Primary Rule

1 If collateral appears, then score 0

and intermediate OR about 50% OR mild reduction OR moderate appears, then score 1

unless density OR flow OR moderate-sized appears, then score

1 2 3 + Delete File Save File

Add Primary Rule

1 If collateral appears, then score 0

and poor OR less than 50% OR <50% OR score 1 OR reduced at gr appears, then score 1

unless density OR flow appears, then score

### Rules for collateral status (text format):

```
{
  "Name": "1",
  "Dirty": false,
  "Rules": [
    {
      "Primary": {
        "Rule": [
          "collateral"
        ]
      }
    }
  ]
}
```

```
],
"Score": 0,
"Selected": false,
"type": "Primary",
"u_id": "jgmjtg"
},
"Secondary": {
  "Replace": [
    {
      "Rule": [
        "good",
        "OR",
        "greater than 50%",
        "OR",
        "more than 50%",
        "OR",
        "minimal reduction",
        "OR",
        "filling >50%",
        "OR",
        ">50%",
        "OR",
        "adequate",
        "OR",
        "preserved",
        "OR",
        "excellent",
        "OR",
        "exceed 50%",
        "OR",
        "score 2"
      ],
      "Score": 1,
      "Modifier": "None",
      "Selected": true,
      "type": "Replace",
      "u_id": "k26tk"
    }
  ],
  "Ignore": [
    {
      "Rule": [
        "density",
        "OR",
        "flow"
      ],
      "Score": 0,
      "Modifier": "None",
      "Selected": false,
      "type": "Ignore",
      "u_id": "6nvxd"
    }
  ],
  "Add": []
}
},
{
  "Primary": {
```

```
"Rule": [
  "collateral"
],
"Score": 0,
"Selected": false,
"type": "Primary",
"u_id": "r8u91j"
},
"Secondary": {
  "Replace": [
    {
      "Rule": [
        "good.*flow",
        "OR",
        "flow.*good"
      ],
      "Score": 1,
      "Modifier": "None",
      "Selected": false,
      "type": "Replace",
      "u_id": "40fek9"
    }
  ],
  "Ignore": [],
  "Add": []
}
}
]
}
{
  "Name": "2",
  "Dirty": false,
  "Rules": [
    {
      "Primary": {
        "Rule": [
          "collateral"
        ],
        "Score": 0,
        "Selected": true,
        "type": "Primary",
        "u_id": "8n8bq"
      },
      "Secondary": {
        "Replace": [
          {
            "Rule": [
              "intermediate",
              "OR",
              "about 50%",
              "OR",
              "mild reduction",
              "OR",
              "moderate"
            ],
            "Score": 1,
            "Modifier": "None",
```

```

        "Selected": false,
        "type": "Replace",
        "u_id": "od71pt"
    }
],
"Ignore": [
    {
        "Rule": [
            "density",
            "OR",
            "flow",
            "OR",
            "moderate-sized"
        ],
        "Score": 0,
        "Modifier": "None",
        "Selected": false,
        "type": "Ignore",
        "u_id": "qihd6i"
    }
],
"Add": []
}
}
]
}
{
    "Name": "3",
    "Dirty": false,
    "Rules": [
        {
            "Primary": {
                "Rule": [
                    "collateral"
                ],
                "Score": 0,
                "Selected": false,
                "type": "Primary",
                "u_id": "jw2wsm"
            },
            "Secondary": {
                "Replace": [
                    {
                        "Rule": [
                            "poor",
                            "OR",
                            "less than 50%",
                            "OR",
                            "<50%",
                            "OR",
                            "score 1",
                            "OR",
                            "reduced at greater than 50%",
                            "OR",
                            "\\bno\\b",
                            "OR",
                            "slight filling"
                        ]
                    }
                ]
            }
        }
    ]
}

```

```
    ],
    "Score": 1,
    "Modifier": "None",
    "Selected": true,
    "type": "Replace",
    "u_id": "rm7n9m"
  }
],
"ignore": [
  {
    "Rule": [
      "density",
      "OR",
      "flow"
    ],
    "Score": 0,
    "Modifier": "None",
    "Selected": false,
    "type": "Ignore",
    "u_id": "peva1"
  }
],
"Add": []
}
]
}
```