



# 1. Executive Summary

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# 2. Introduction

## 2.1. History of Development

## 2.2. Intended Purpose

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## 2.3. Design Principles

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# 2.4. Conceptual System Environment

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# 3. SPASE Data Model

## 3.1. Resource Types

### 3.1.1. Data Resources

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### 3.1.2. Origination Resources

### 3.1.3. Infrastructure Resources

### 3.1.4. Ontology



### 3.2. Resource Identifiers

### 3.3. Core Attributes

### 3.4. Text Mark-up

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3.4.1 Normalization Rules

Text Interpretation Rules

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3.5. Extensions

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# 4. Guidelines for Metadata Descriptions

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# 5. Examples

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<?xml version="1.0" encoding="UTF-8" ?>
<Spase>
  <Version>2.0.0</Version>
  <Person>
    <ResourceID>spase://person/jsmith@smith.org</ResourceID>
    <PersonName>John Smith</PersonName>
    <OrganizationName>Smith Foundation</OrganizationName>
    <Address>1 Main St., Smithville, MA</Address>
    <Email>jsmith@smith.org</Email>
    <PhoneNumber>1-800-555-1212</PhoneNumber>
  </Person>
</Spase>
```

```
<?xml version="1.0" encoding="UTF-8" ?>
<Spase>
  <Version>2.0.0</Version>
  <NumericalData>
    <ResourceID>spase://VMO/NumericalData/ACE/MAG/200301</ResourceID>
    <ResourceHeader>
      <ResourceName>ACEMAG200301</ResourceName>
      <ReleaseDate>2006-07-26T00:00:00.000</ReleaseDate>
      <Acknowledgement>
        User will acknowledge the data producer and instrument P.I. in any
        publication resulting from the use of these data.
      </Acknowledgement>
      <Description>
        ACE MFI 1-minute averaged magnetic-field data in GSE coordinates
        from Jan 2003. These data have been derived from the 16 second
        resolution ACE MFI which were linearly interpolated to a 1-minute
        time grid with time stamps at second zero of each minute.
      </Description>

      <Contact>
        <Role>PrincipalInvestigator</Role>
        <PersonID>spase://SMWG/Person/Norman.F.Ness</PersonID>
      </Contact>

      <Contact>
        <Role>Co-Investigator</Role>
        <PersonID>spase://SMWG/Person/Charles.Smith</PersonID>
      </Contact>

      <Contact>
        <Role>DataProducer</Role>
        <PresonID>spase://SMWG/Person/James.M.Weygand</PresonID>
      </Contact>
    </ResourceHeader>
```

```

<AccessInformation>
  <AccessRights>Open</AccessRights>
  <AccessURL>
    <URL>http://www.igpp.ucla.edu/getResource?format=text&id=spase://UCLA/ACEMAG200301</URL>
  </AccessURL>
  <Format>Text</Format>
  <Encoding>GZIP</Encoding>
</AccessInformation>

<InstrumentID>spase://SMWG/ACE/MAG</InstrumentID>
<MeasurementType>MagneticField</MeasurementType>

<TemporalDescription>
  <TimeSpan>
    <StartDate>1997-01-01T00:00</StartDate>
    <StopDate>2004-01-31T23:59</StopDate>
  </TimeSpan>
  <Cadence>PT1M</Cadence>
</TemporalDescription>

<InstrumentRegion>Heliosphere.NearEarth</InstrumentRegion>
<ObservedRegion>Heliosphere.NearEarth</ObservedRegion>

<Parameter>
  <Name>SAMPLE_TIME_UTC</Name>
  <ParameterKey>time</ParameterKey>
  <Description>
    Sample UTC in the form DD MM YYYY hh mm ss where
    DD   = day of month (01-31)
    MM   = month of year (01-12)
    YYYY = Gregorian Year AD
    hh   = hour of day   (00:23)
    mm   = minute of hour (00-59)
    ss   = second of minute (00-60) .
  </Description>
  <Support>
    <SupportQuantity>Temporal</SupportQuantity>
  </Support>
</Parameter>

<Parameter>
  <Name>MAGNETIC_FIELD_VECTOR</Name>
  <Units>nT</Units>
  <CoordinateSystem>
    <CoordinateRepresentation>Cartesian</CoordinateRepresentation>
    <CoordinateSystemName>GSE</CoordinateSystemName>
  </CoordinateSystem>
  <Description>
    Magnetic field vector in GSE Coordinates (Bx, By, Bz) .
  </Description>
  <Field>
    <Qualifier>Vector</Qualifier>
    <FieldQuantity>Magnetic</FieldQuantity>
  </Field>
</Parameter>

<Parameter>
  <Name>SPACECRAFT_POSITION_VECTOR</Name>
  <CoordinateSystem>
    <CoordinateRepresentation>Cartesian</CoordinateRepresentation>
    <CoordinateSystemName>GSE</CoordinateSystemName>
  </CoordinateSystem>
  <Units>EARTH RADII</Units>
  <UnitsConversion>6378.16 km</UnitsConversion>

```

```
<Description>
  ACE spacecraft location in GSE coordinates (X,Y,Z)."
</Description>
<Support>
  <SupportQuantity>Positional</SupportQuantity>
</Support>
</Parameter>

</NumericalData>
</Spase>
```

## 6. Element Data Types

## Container

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## Count

## DateTime

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## Duration

## Enumeration

Item

## Numeric

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## Sequence

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**Text**

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# 7. Enumerations

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## AdiabaticInvariant

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## AnnotationType

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## AssociationType

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## Availability

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## ClassificationMethod

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## Component

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## ConfidenceRating



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**DirectionCosine**

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**DisplayType**

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**Encoding**

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## ParticleQuantity



## Projection

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# Venus

## Qualifier

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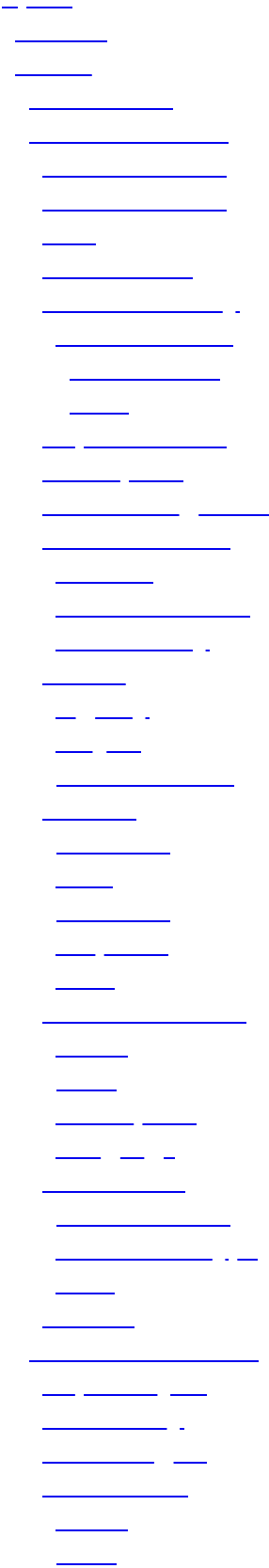






# 8. Data Model Tree

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## 9. Dictionary

## How to Read a Definition

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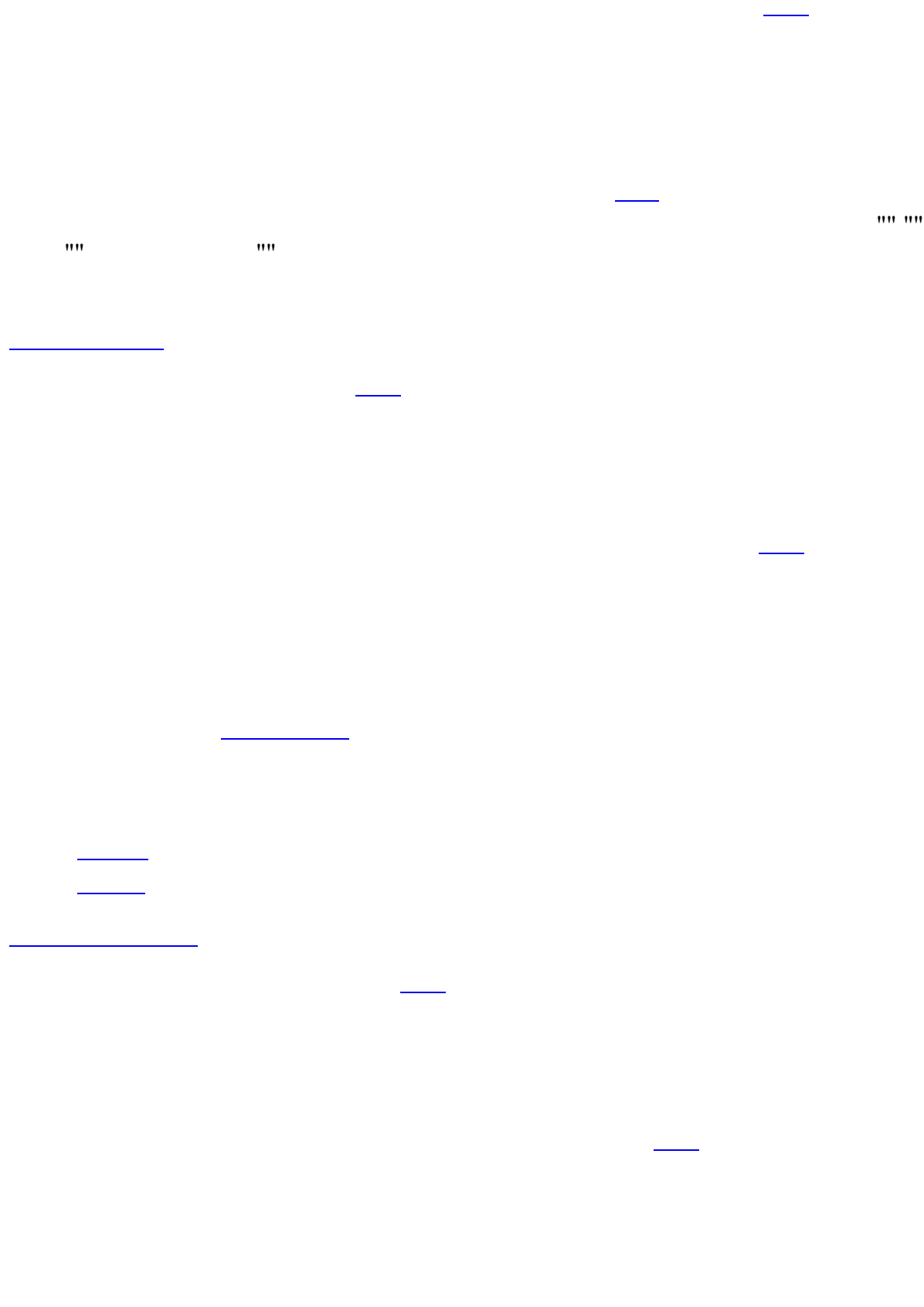
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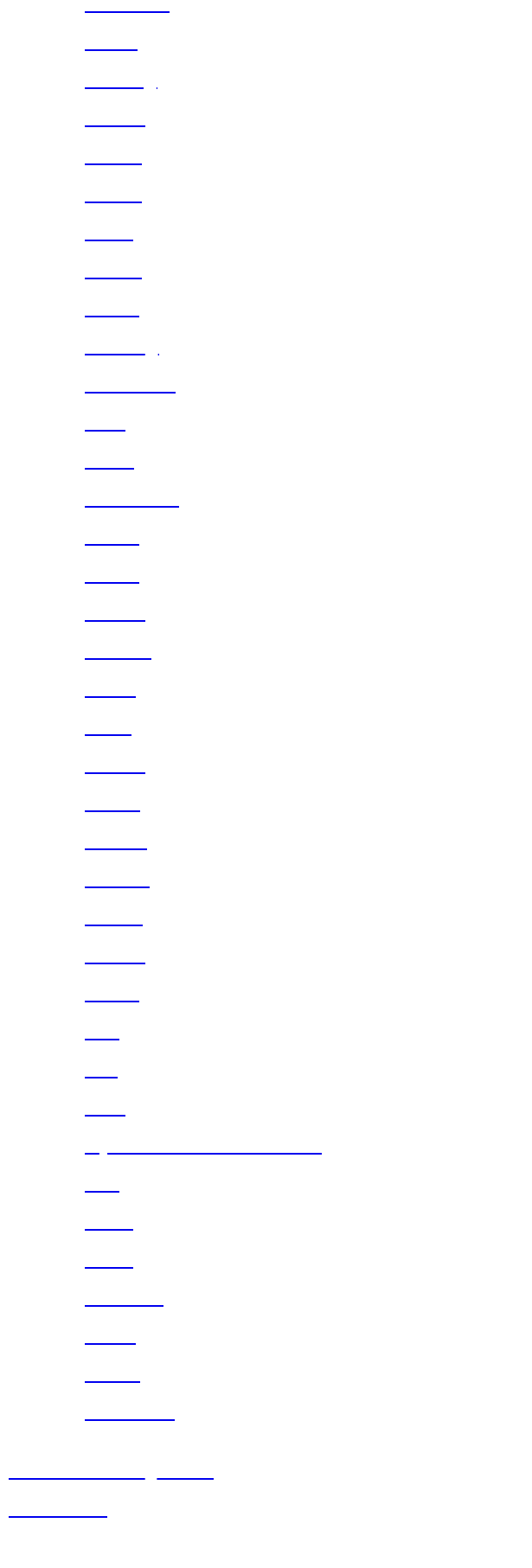
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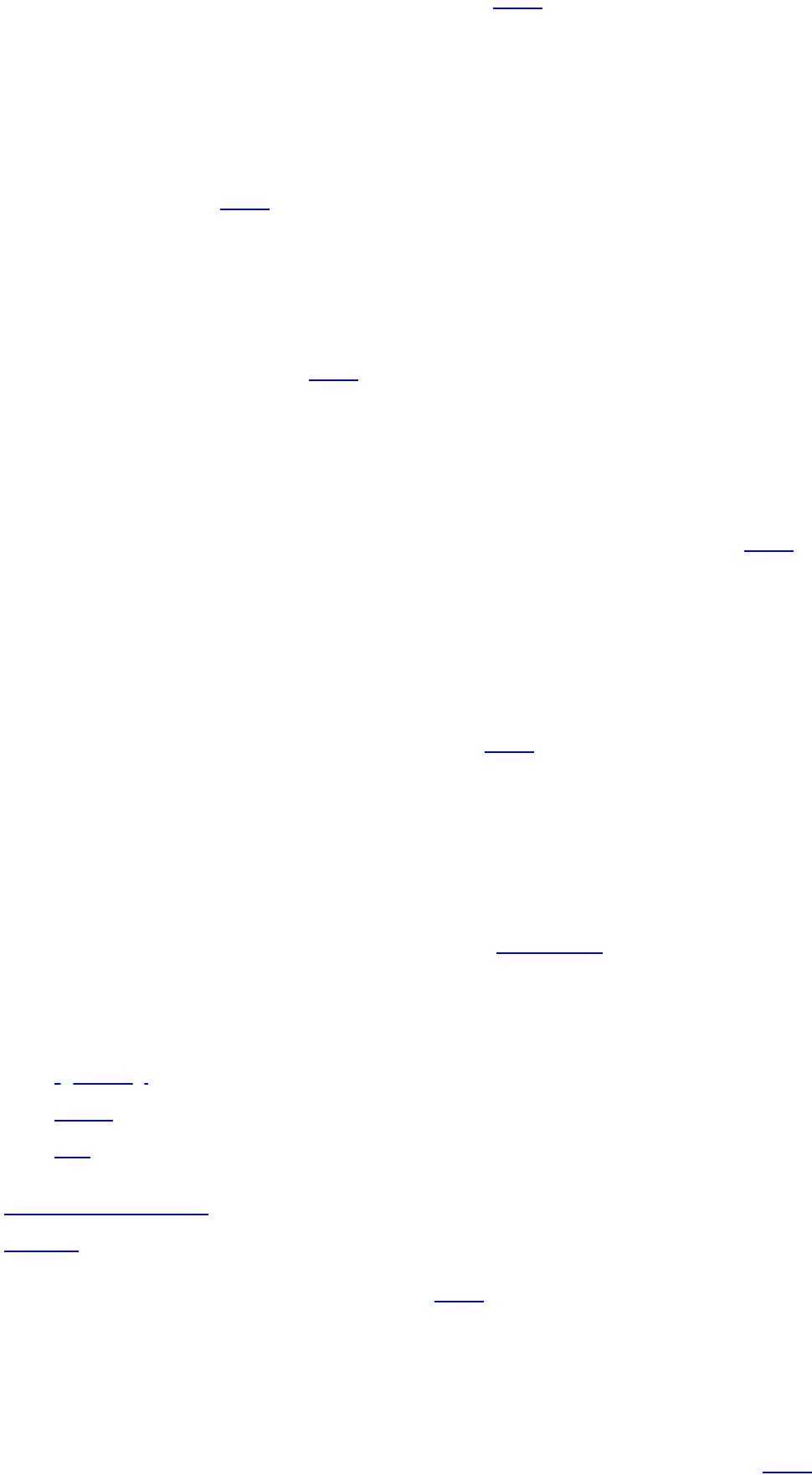
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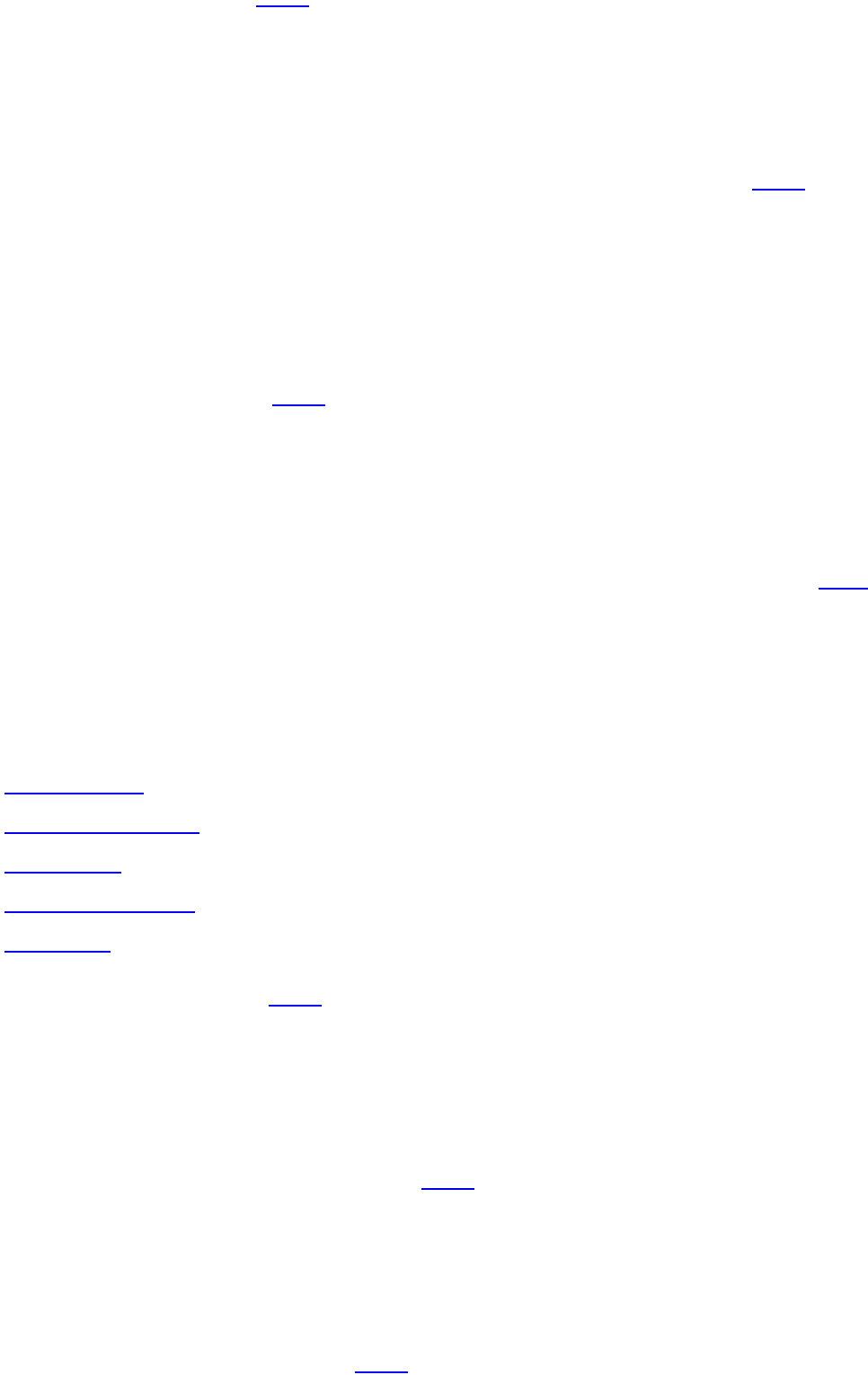
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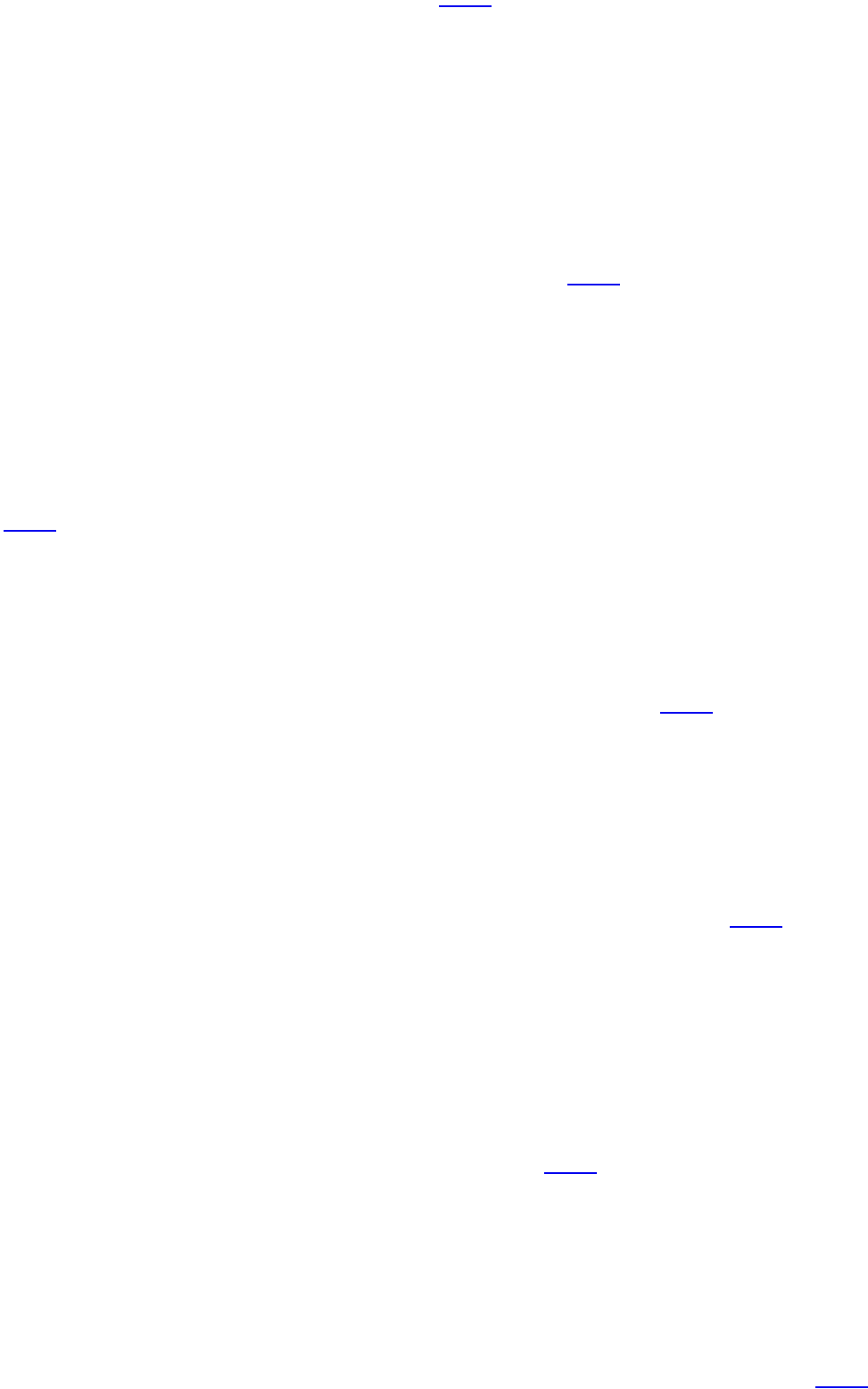
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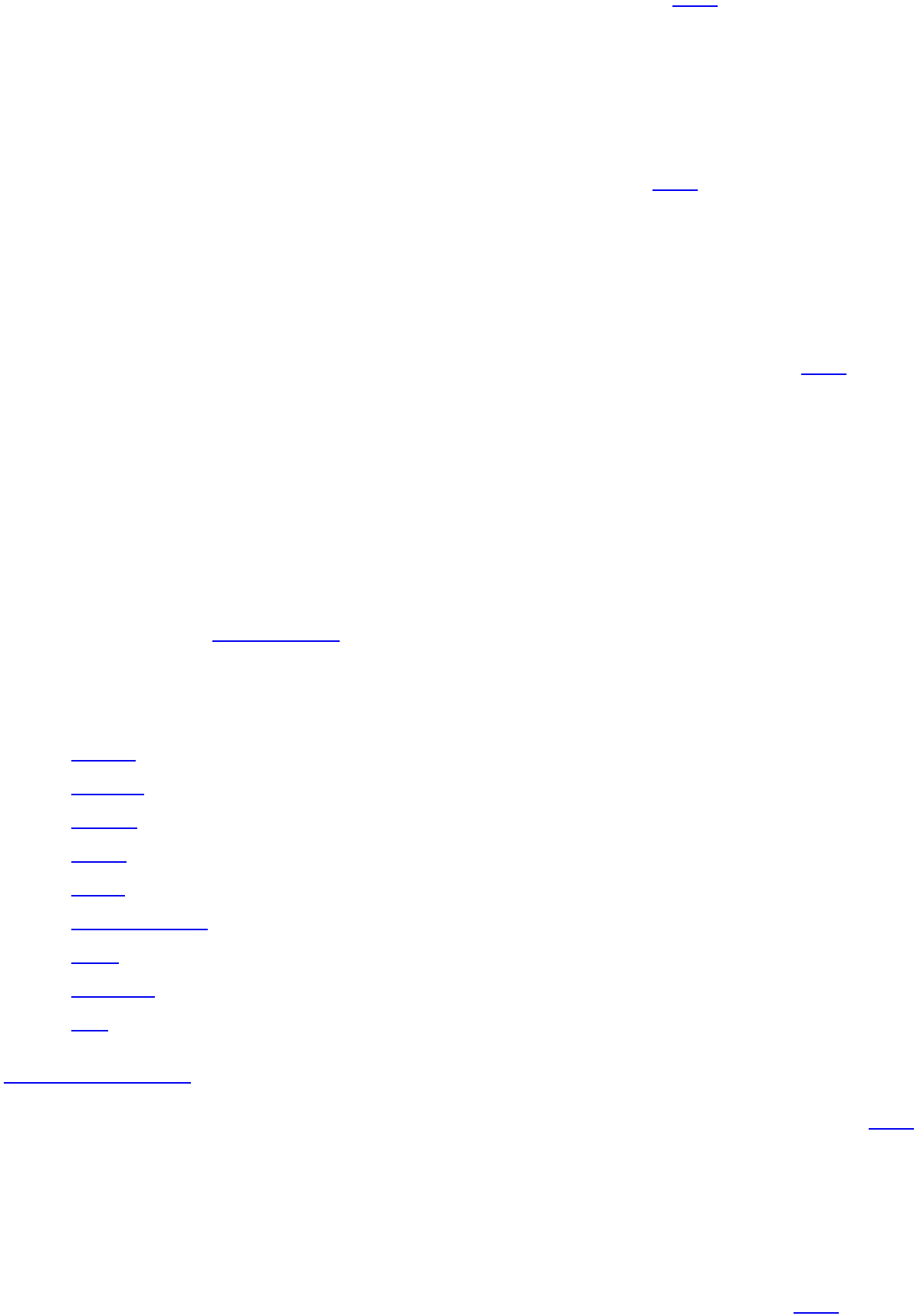


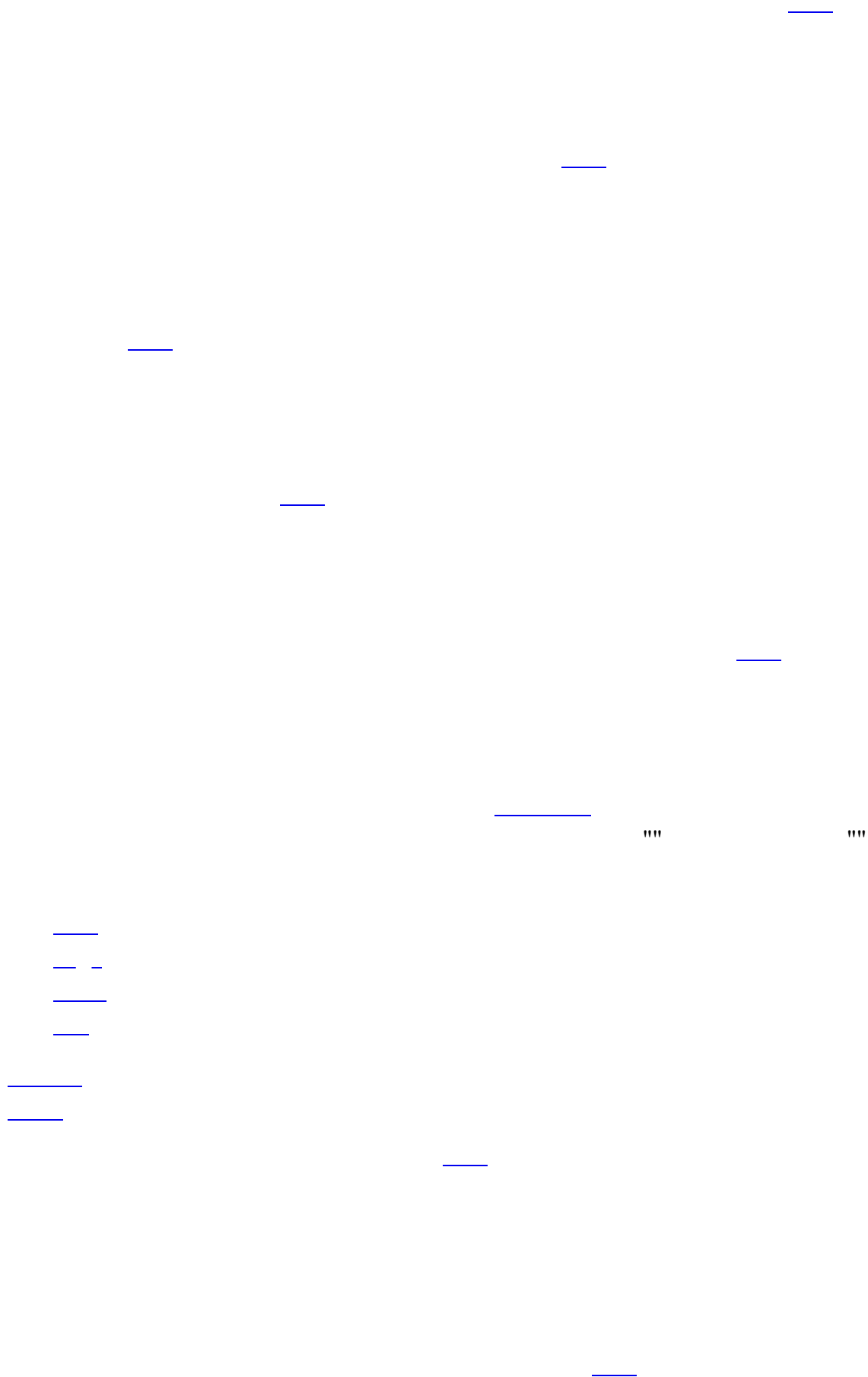












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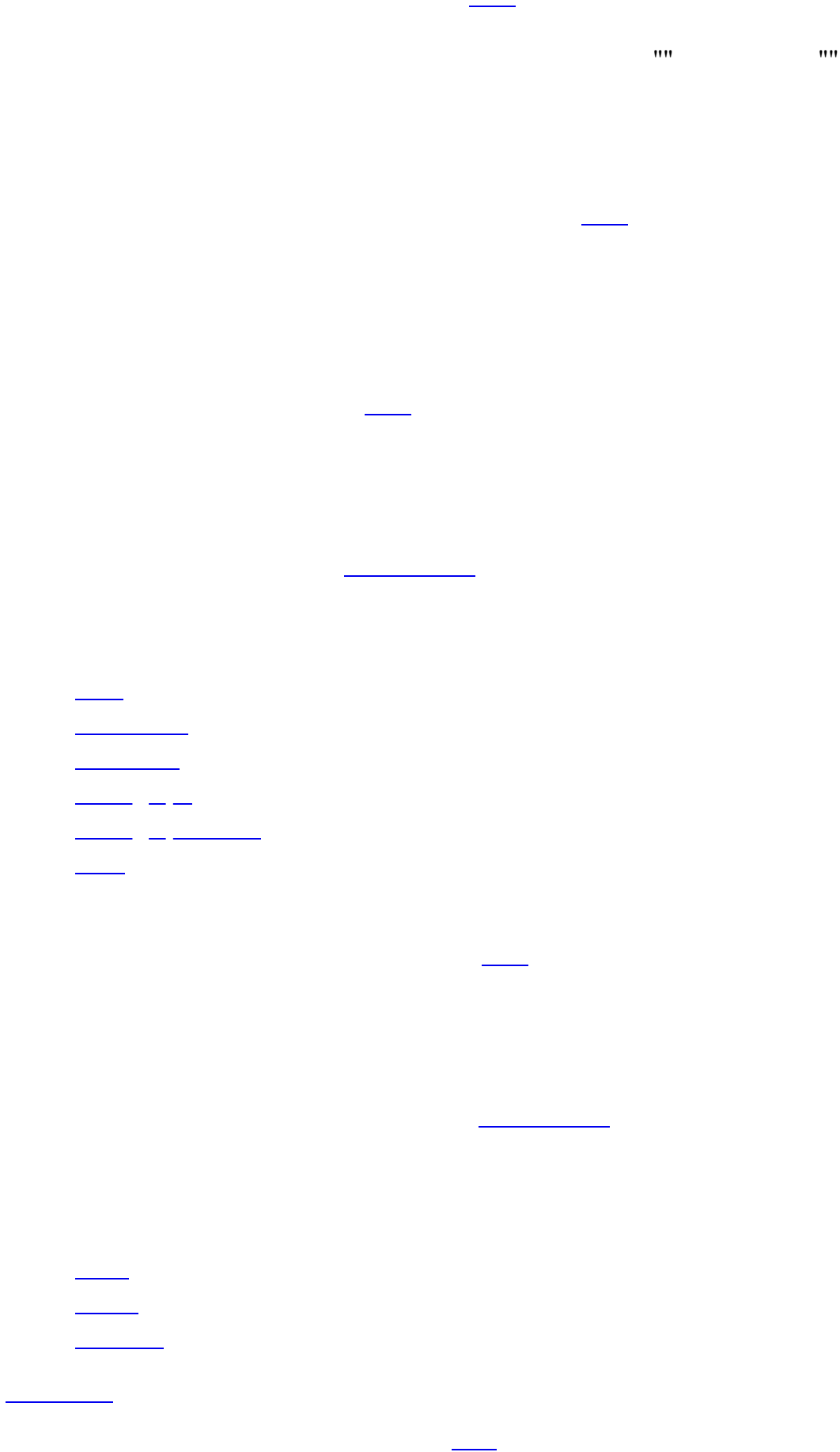
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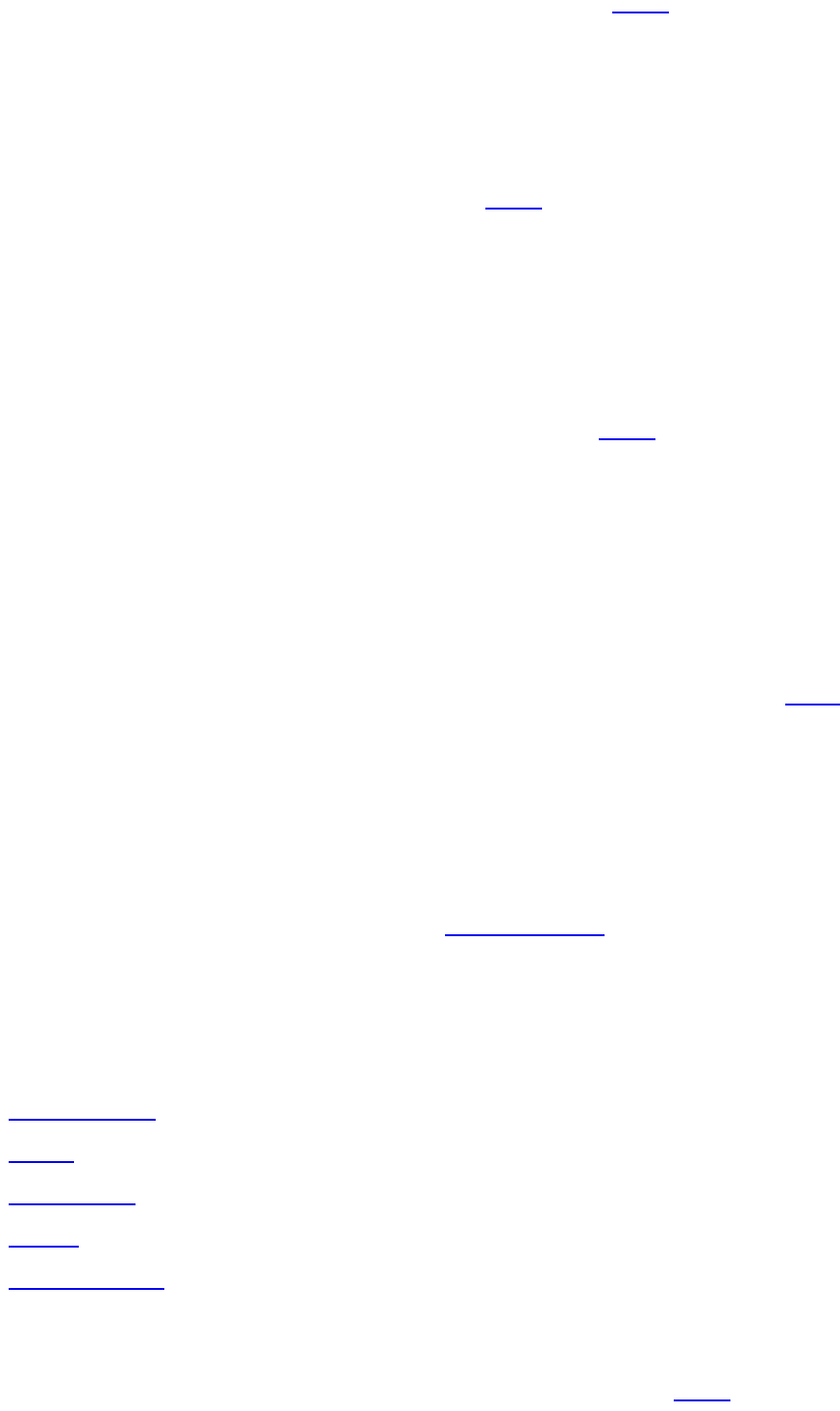
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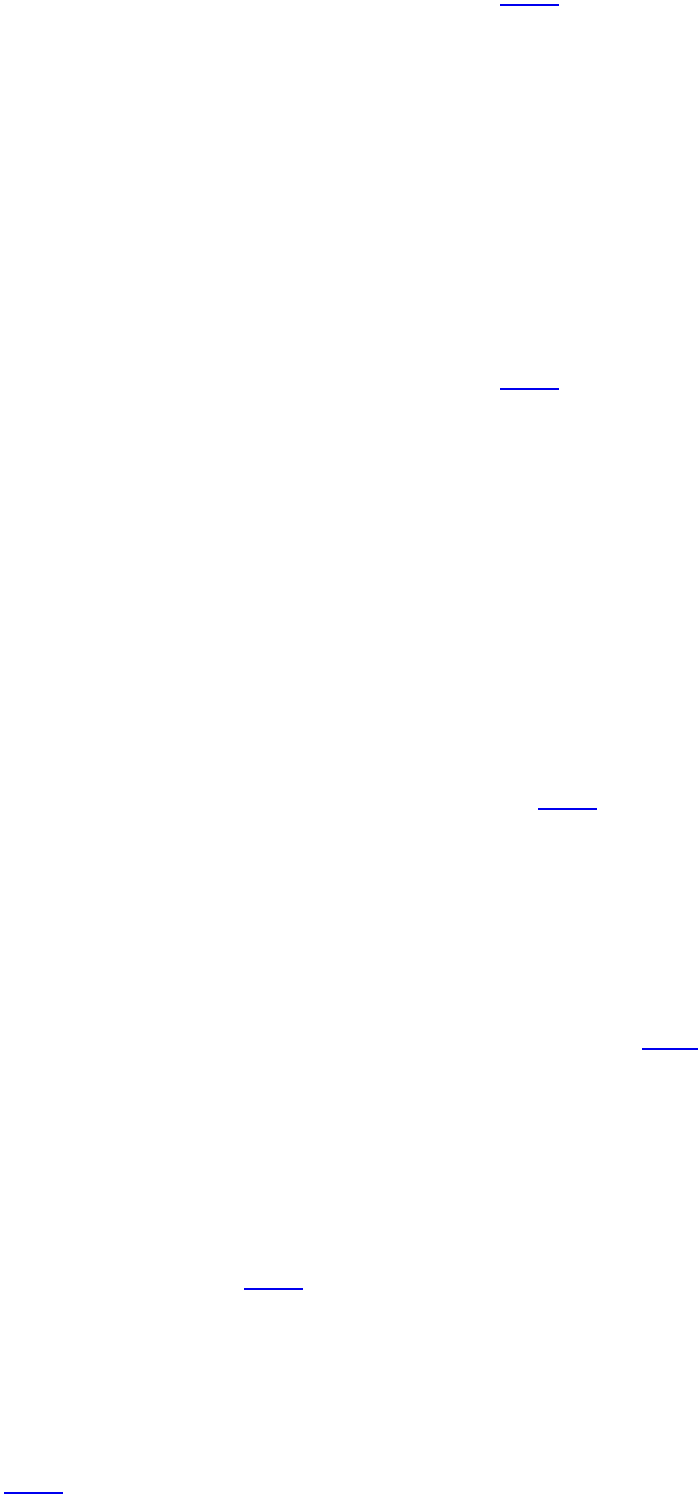
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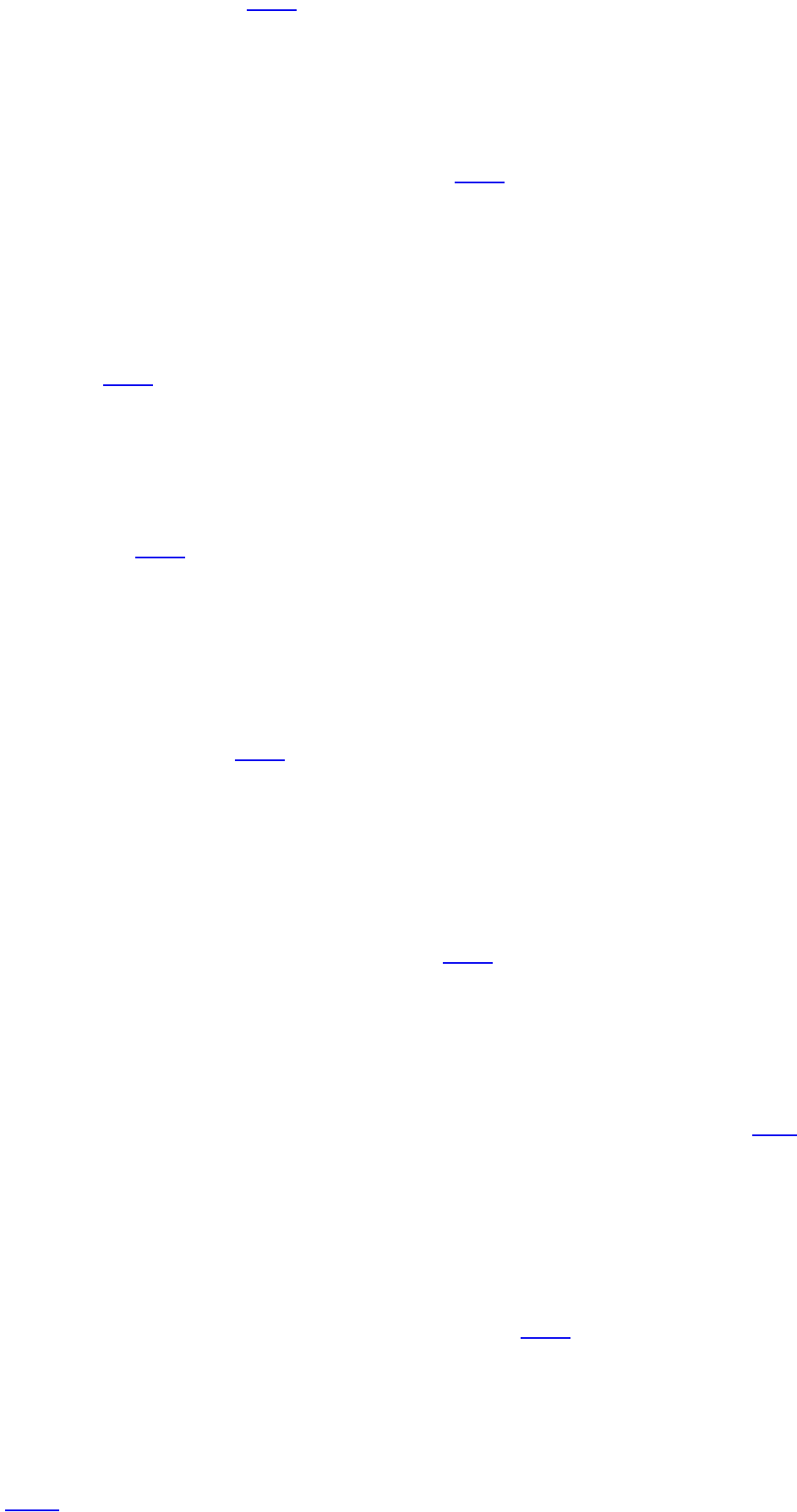
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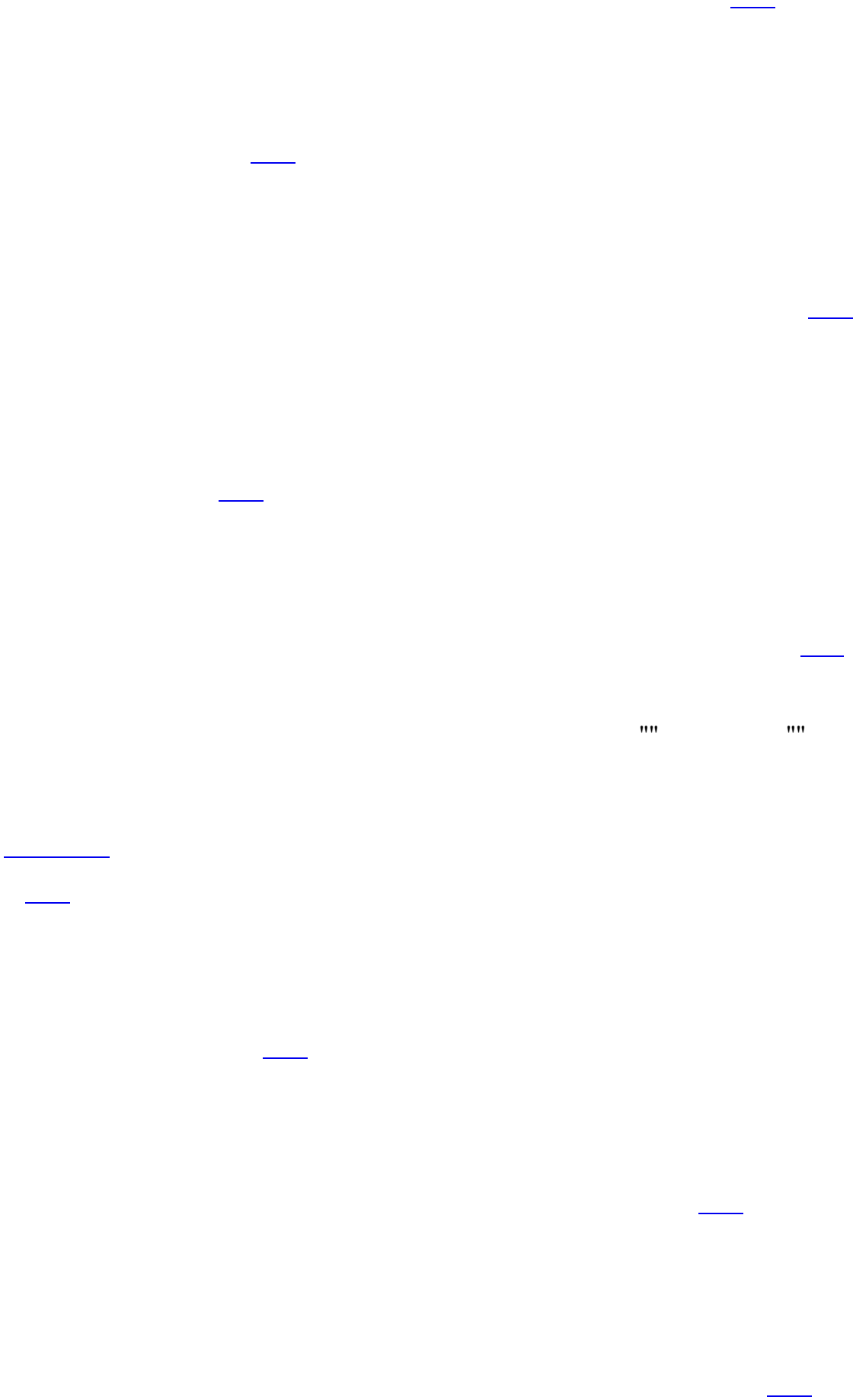
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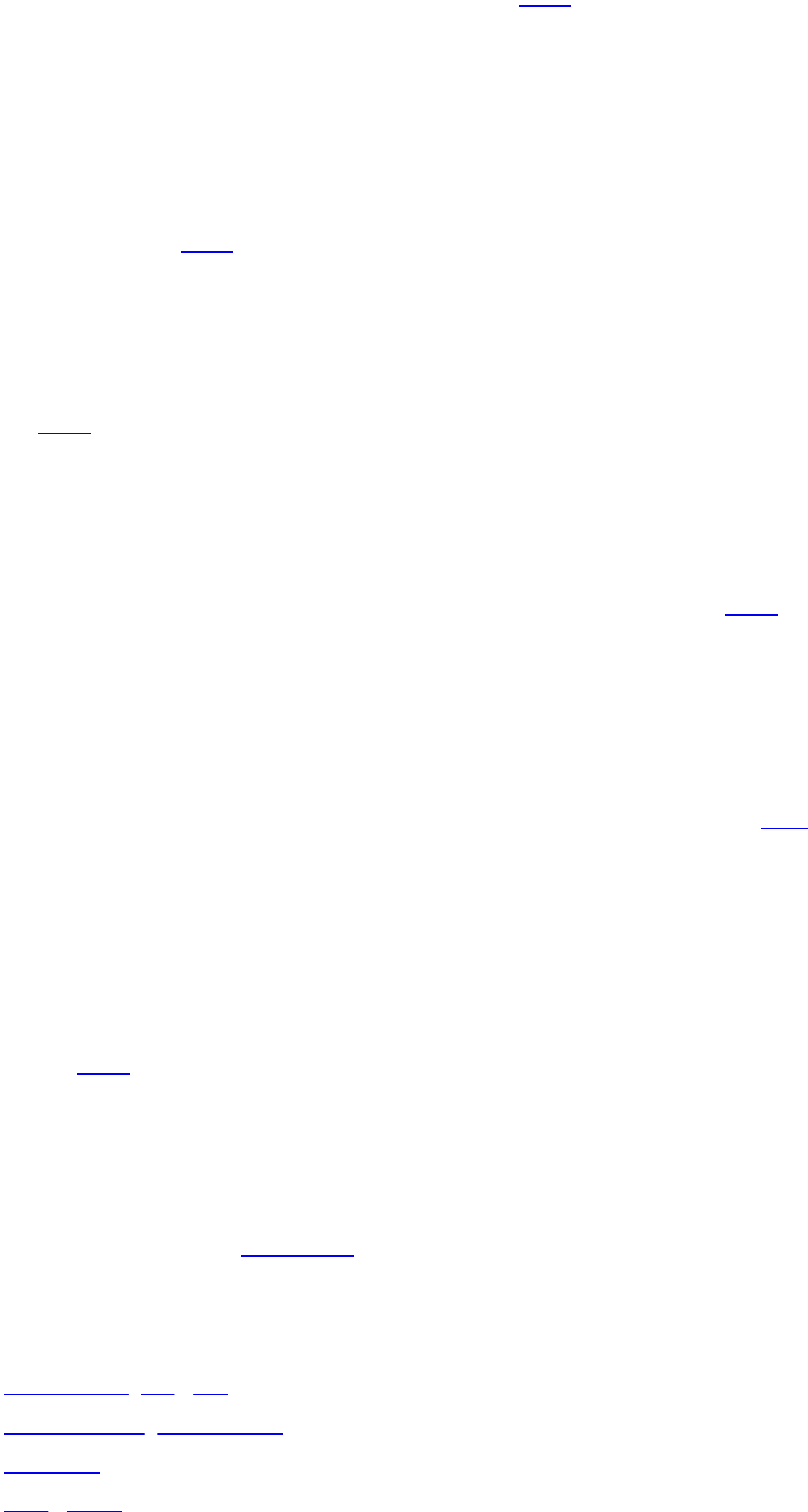
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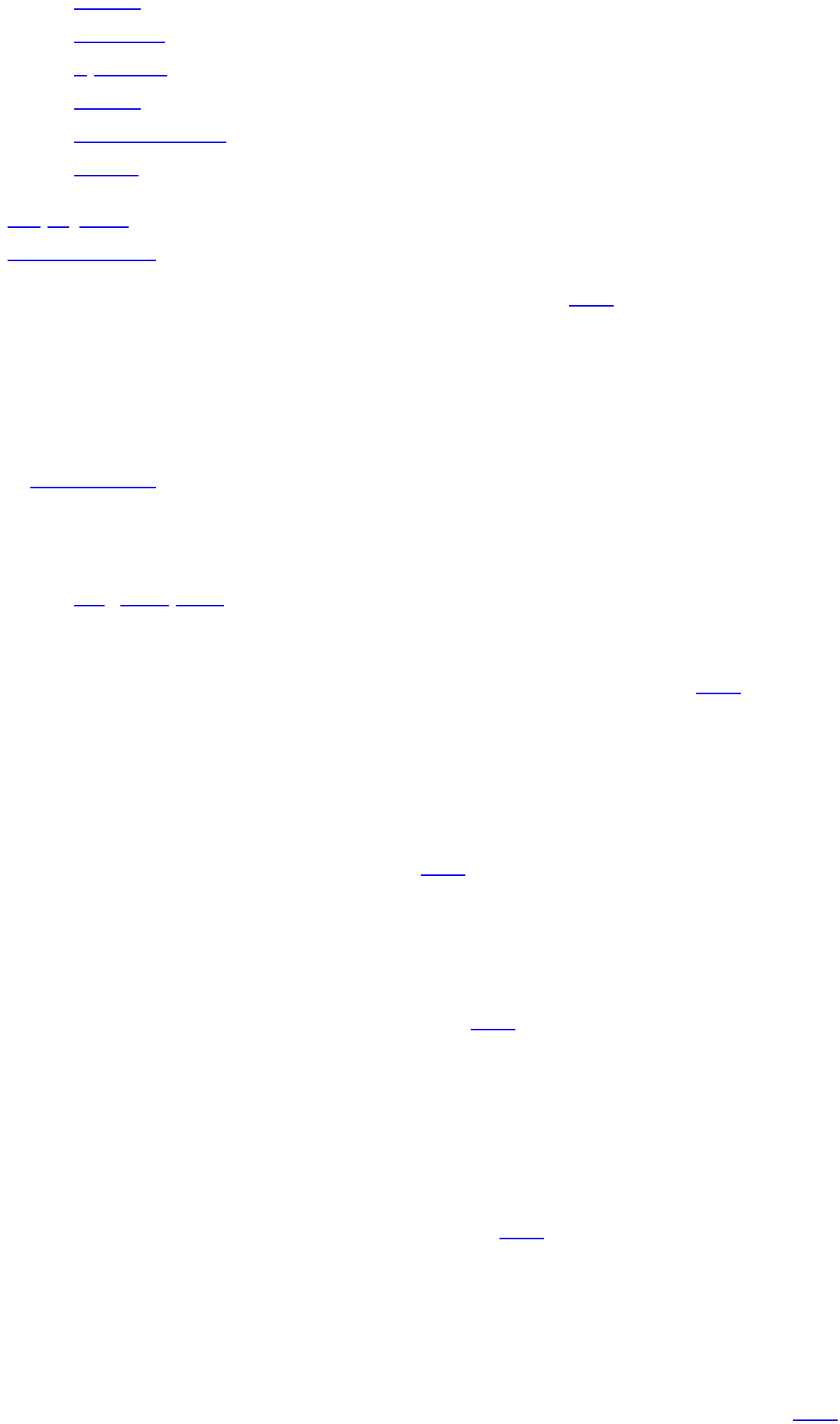
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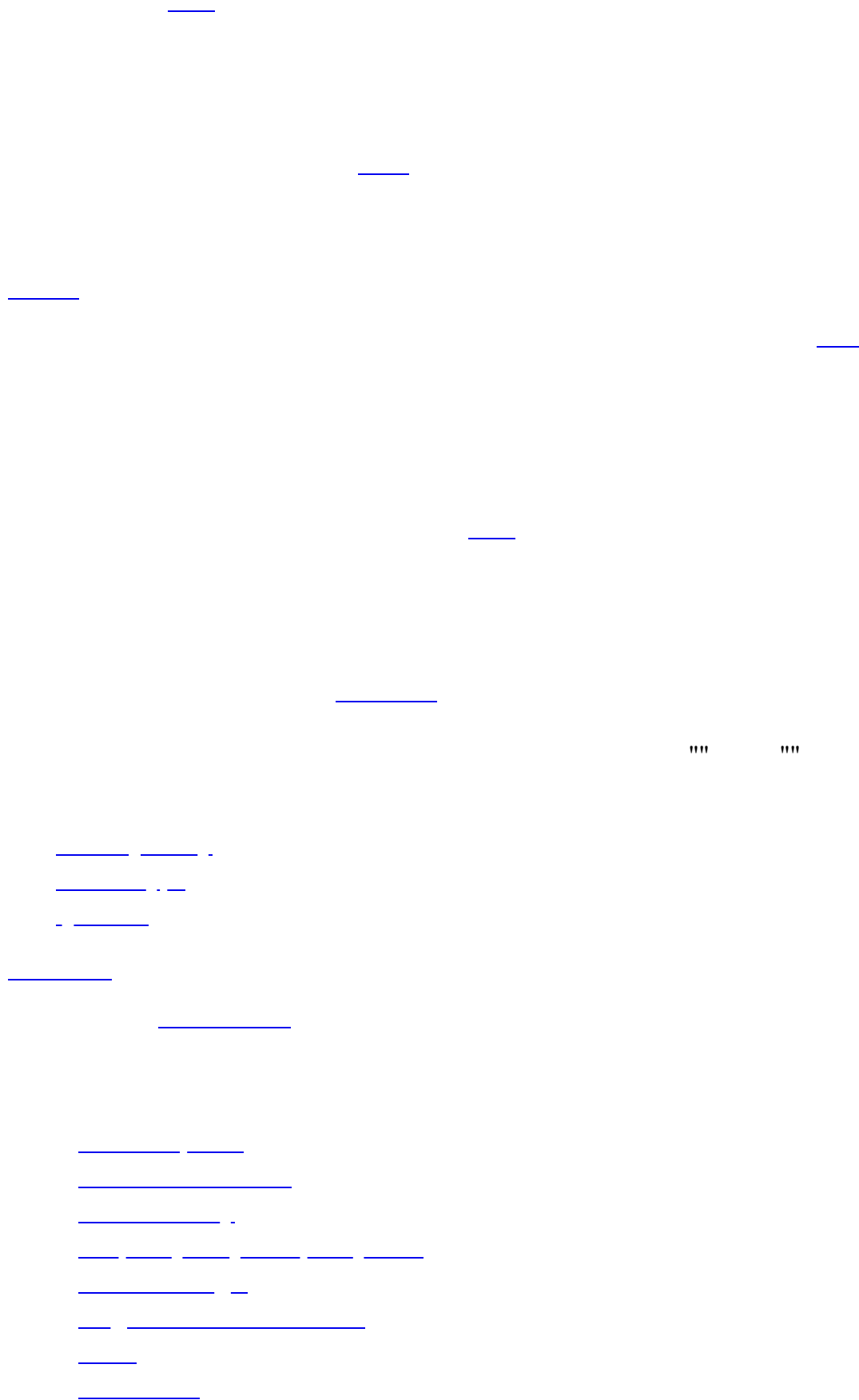
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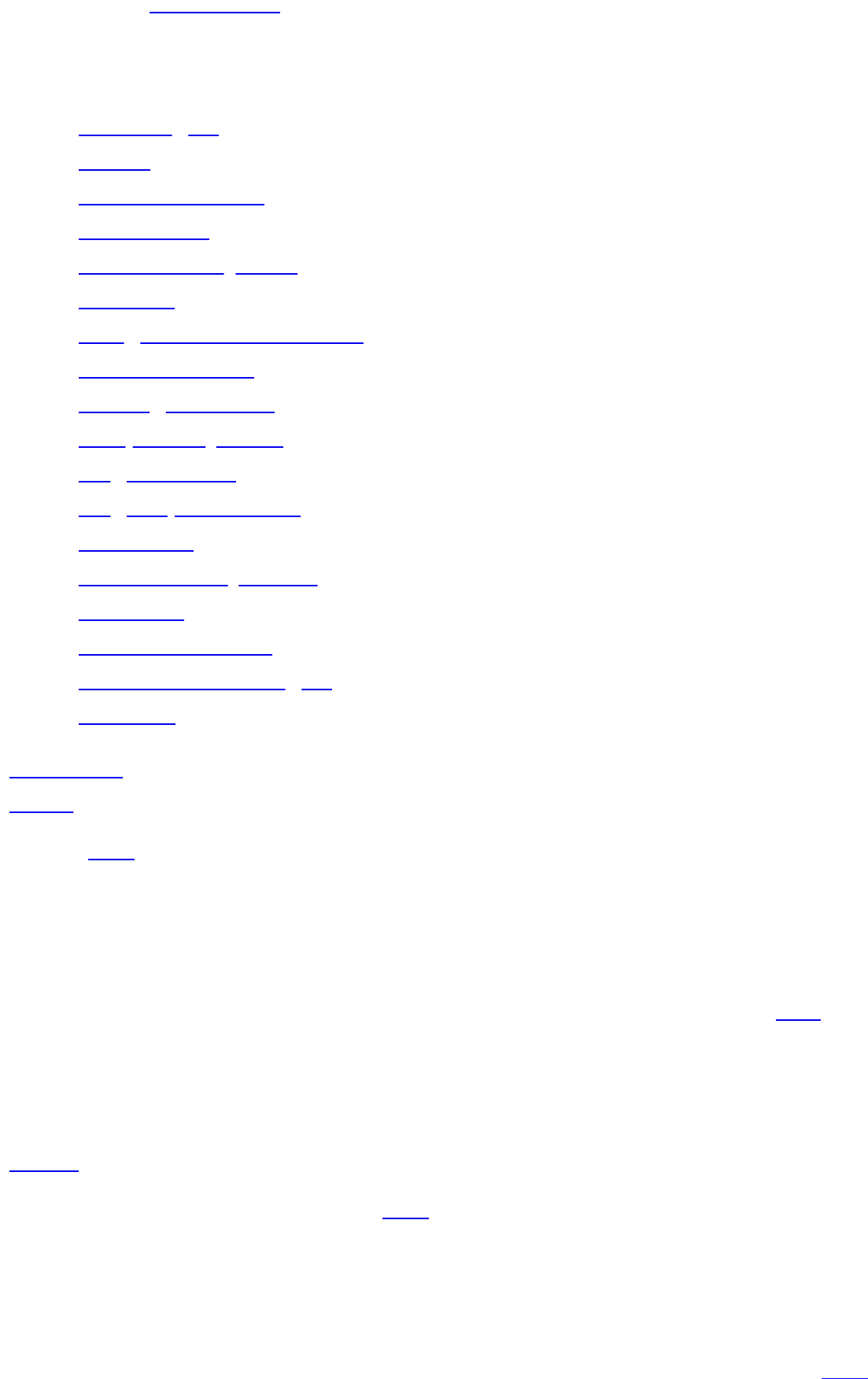
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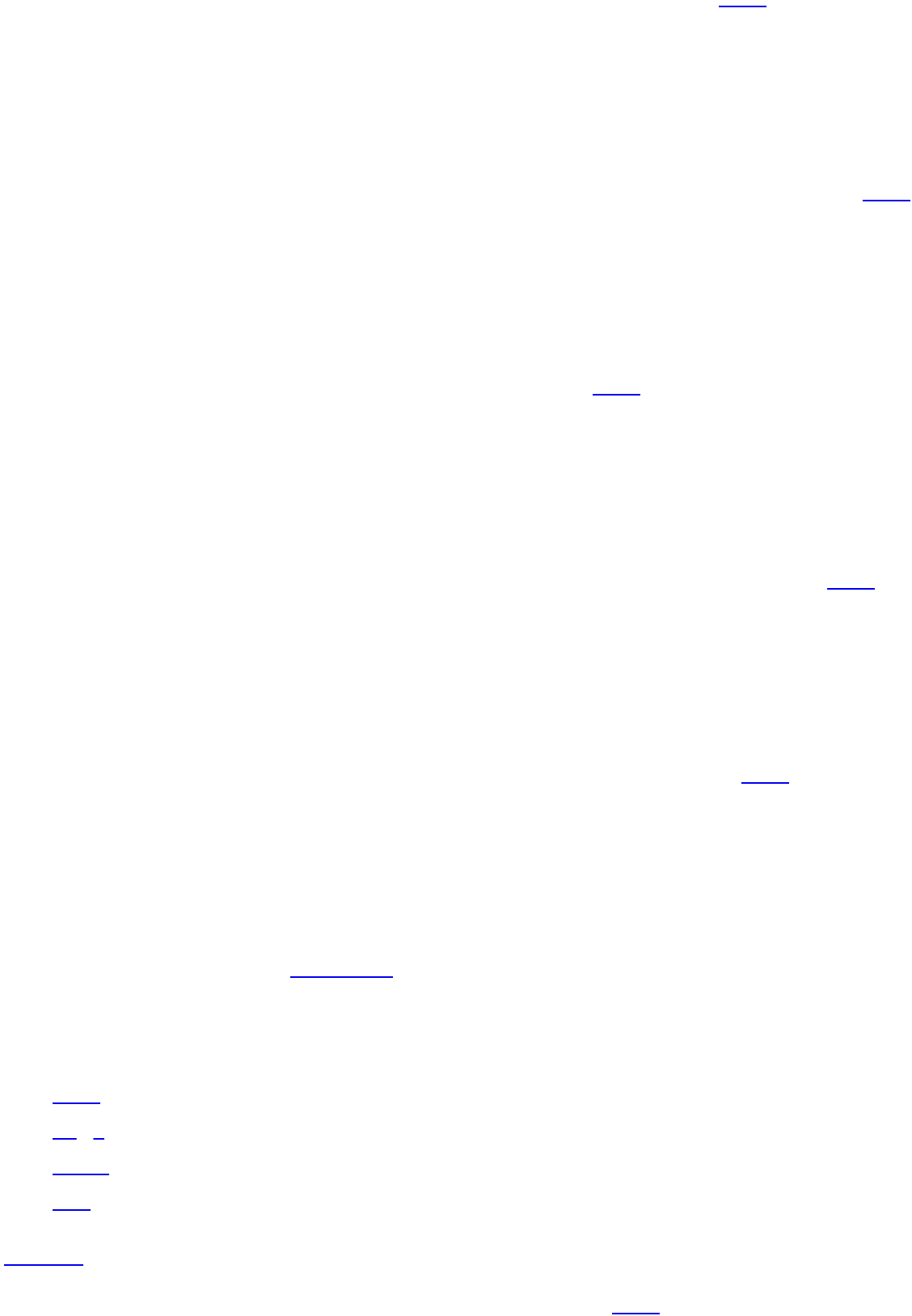
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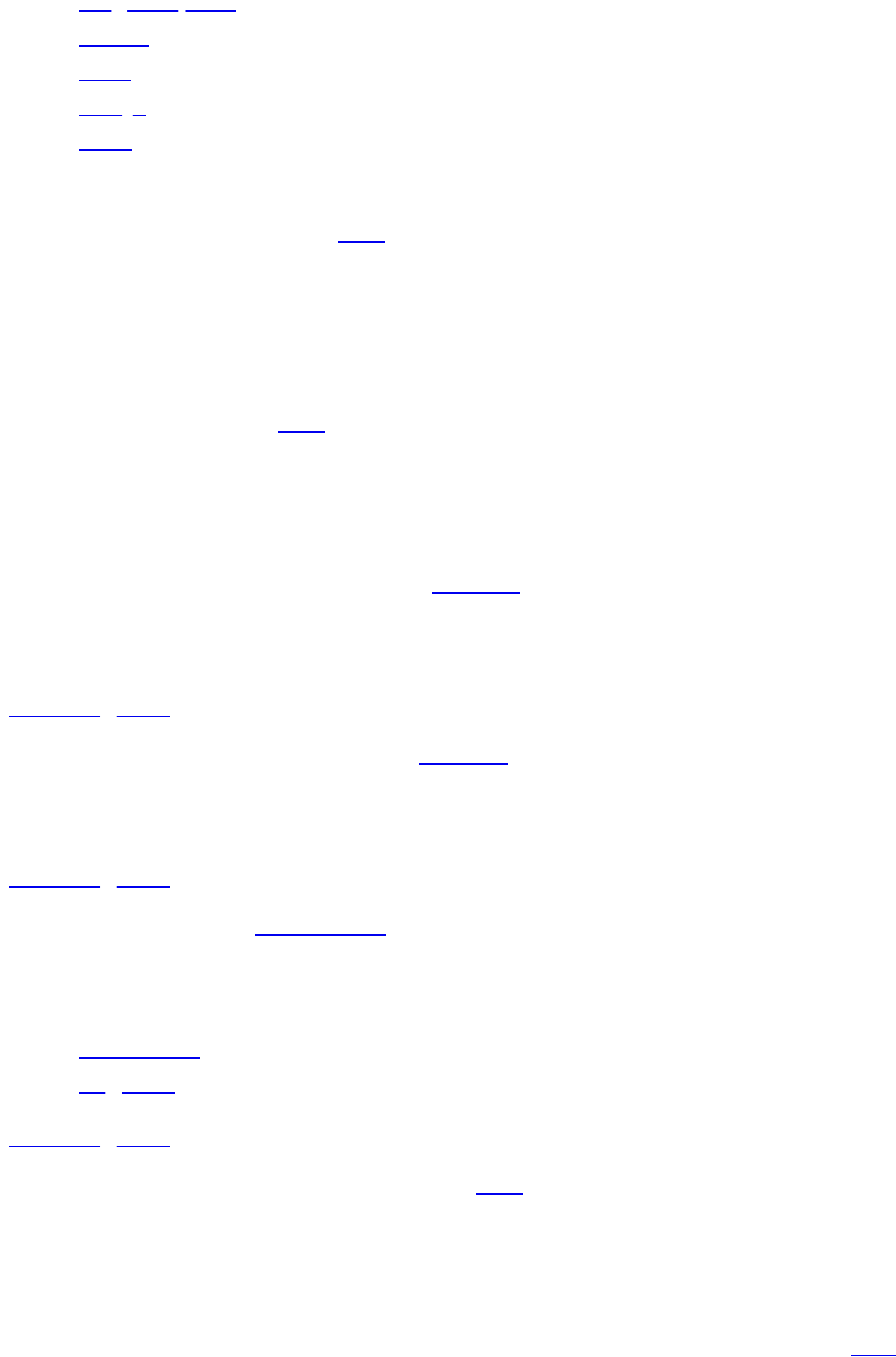
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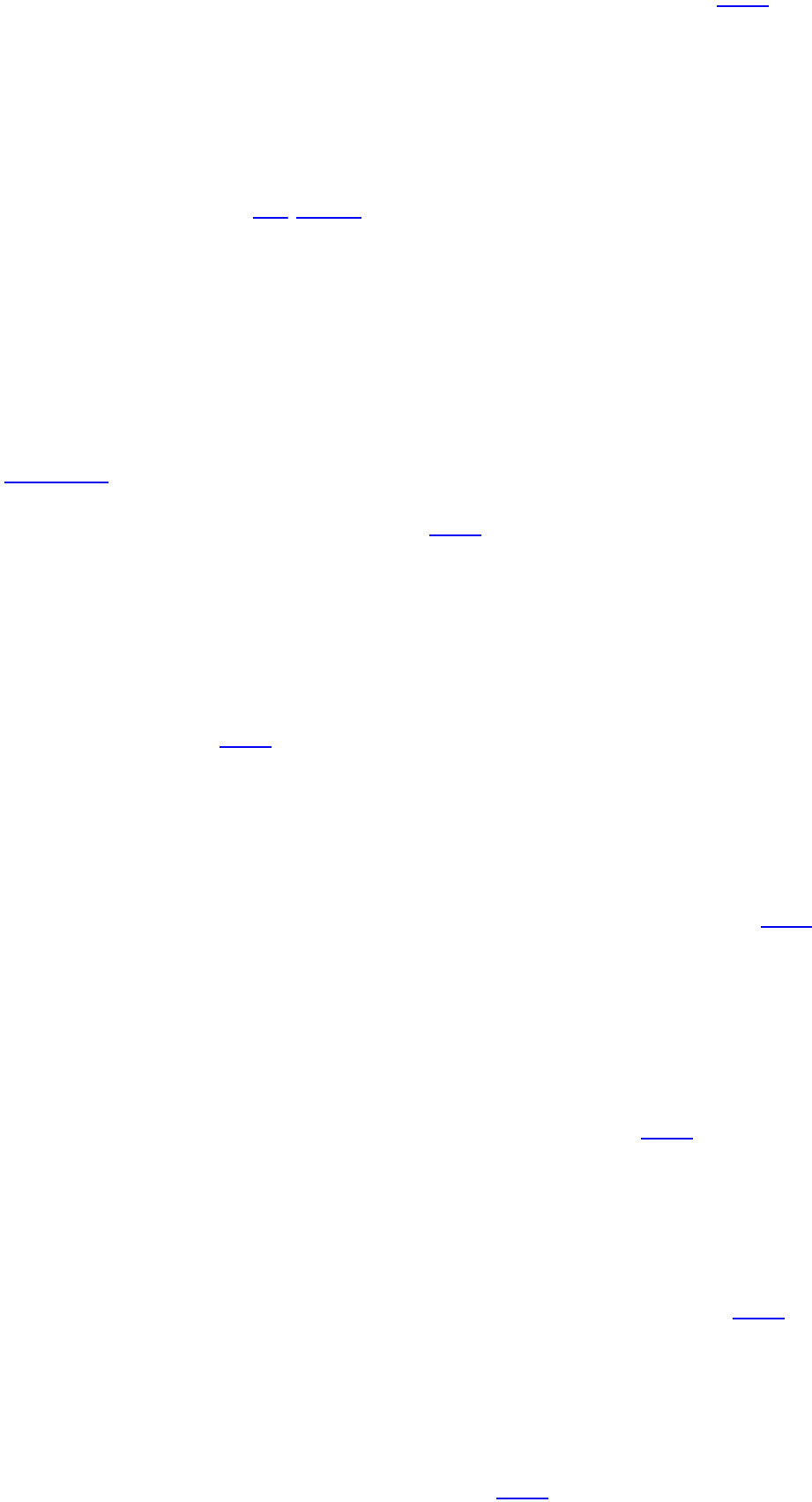
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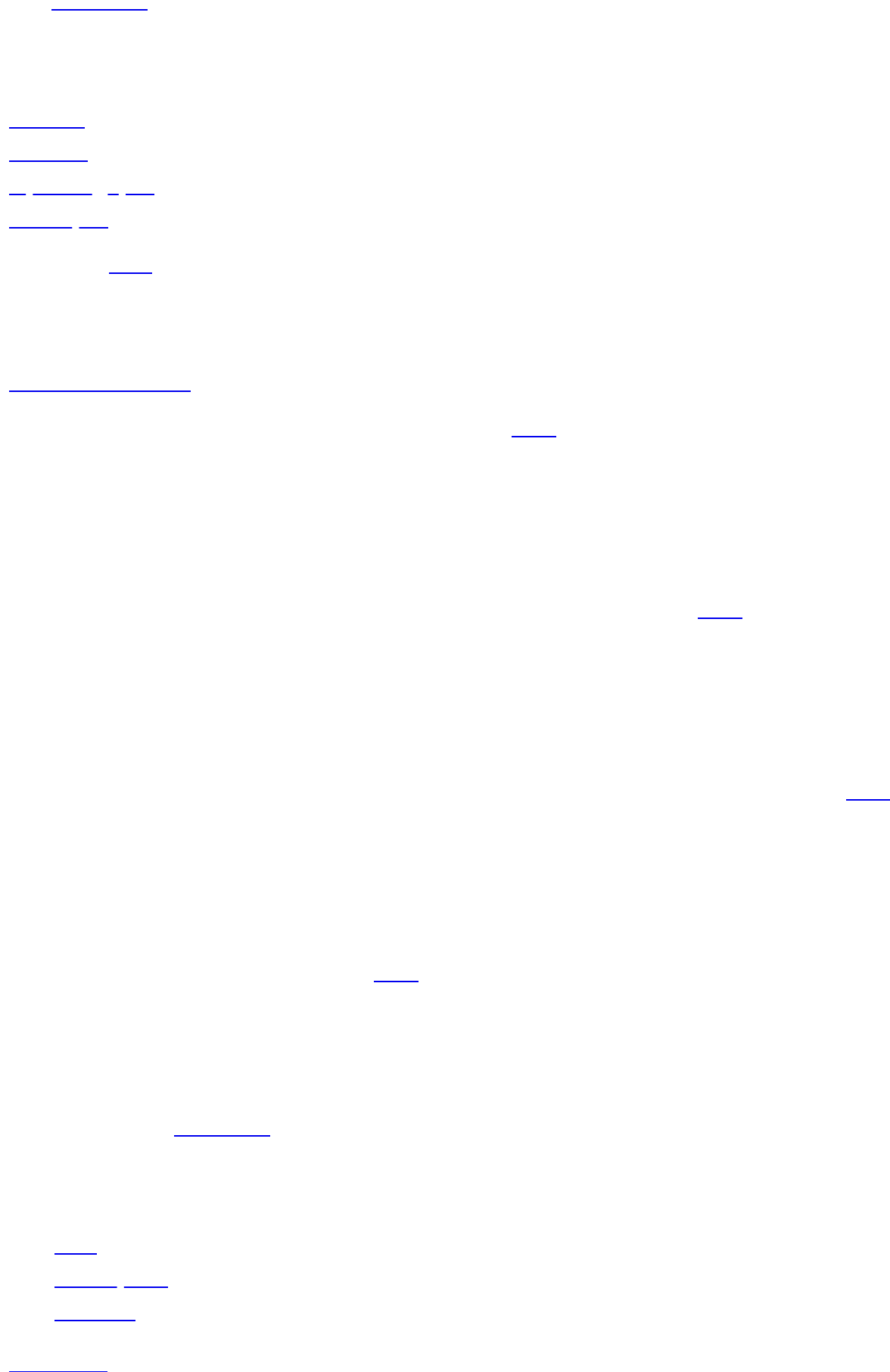
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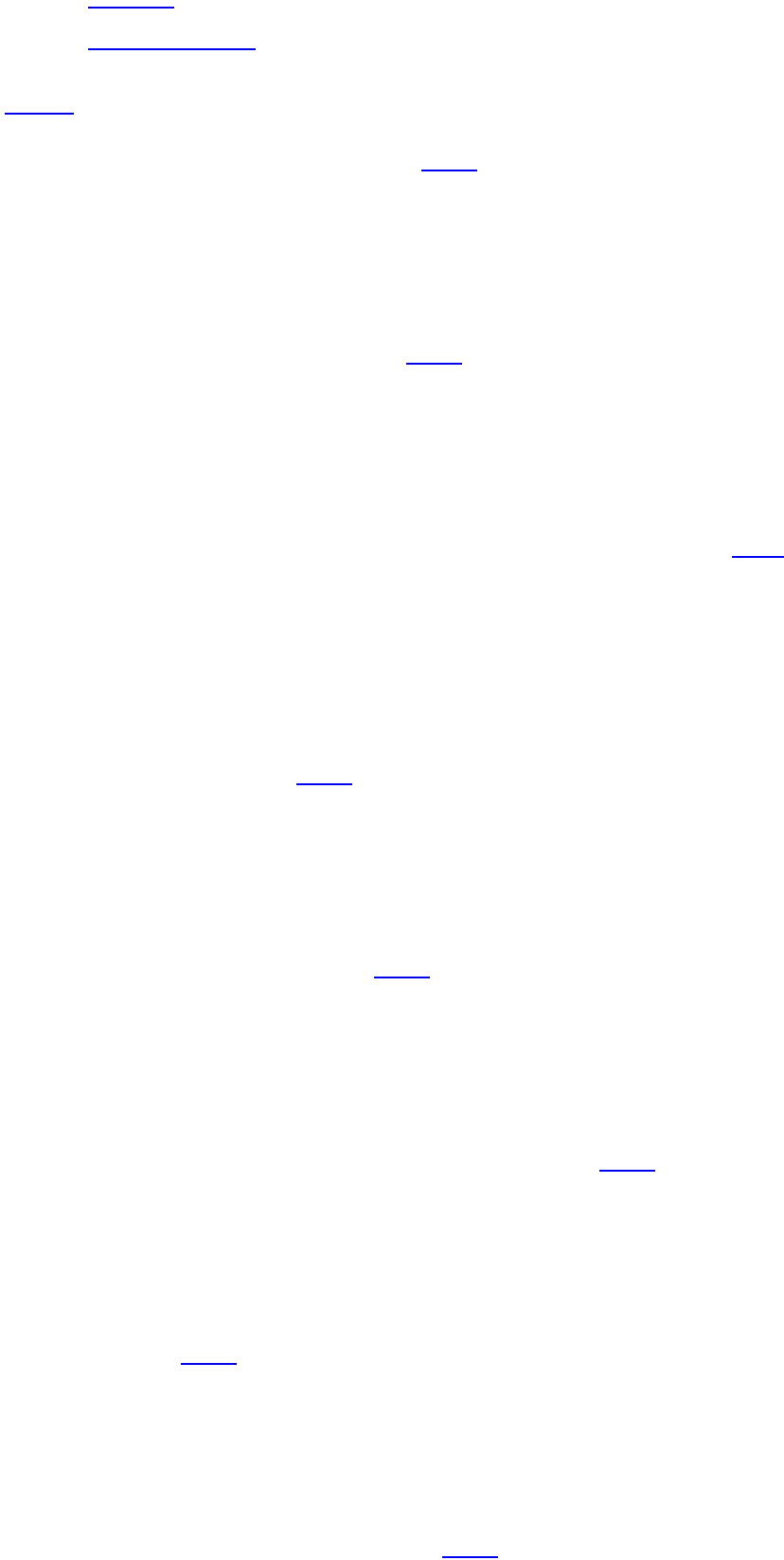
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## 12. Appendix A - Comparison of Spectrum Domains

